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TV computer crime: it's fact not fiction 26

The BBC TV series 'Bird of Prey' has highlighted what a determined individual armed with a microcomputer and the know-how can do. Chris Barnard investigates what computer crime means to the micro user in the street. Stars Richard Griffith and Ann Pennington are pictured left.

Market excitement: Japan and US promise 31,36

Everyone's expecting big things of the Japanese in the world micro market, but Peter Jackson can see some fundamental flaws in the Japanese armour. Meanwhile in the US dealers are unconcerned about the Japanese as demand increases breathtakingly, reports Alastair Segerdal.

Database: good, bad and future 45,107,155

Getting a database system that actually works is not easy. Guy Kewney looks at some trends from the US which may mean better systems in the future. Liz Vousden finds a travel agent who met dismal failure, and Peter Wild tells the tale of a book supplier who found success.

Is Commodore's Vic really up to business? 69,73

Commodore's Vic is a low cost micro sold for home and business use. But dare you really buy it for serious business use? Peter Wild finds one unhappy Vic owner who experienced a series of problems. We also take a look at Commodore's latest plans for new systems and new software.

Inside the box: what CP/M is all about 63

Standard advice for anyone buying a microcomputer for business has been: get one which can run CP/M. We look at its success.

Snap and Televideo: good game for statistics 147

Snap is a program for small to medium market surveys. Charles Christian evaluates how it performs on a TeleVideo machine.

Graham Summers and Planning Consultancy Ltd
An apology

In our June issue we published two photographs of Mr Graham Summers of Planning Consultancy Ltd. These photographs were published in error and without Mr Summers' permission. We wish to make it clear that it was not our intention by the accompanying captions and editorial to cast any aspersion upon the integrity and reputation either of Mr Summers or Planning Consultancy Limited. We unreservedly apologise to both Mr Summers and Planning Consultancy Limited for any distress and embarrassment caused by our unintentional and unfortunate mistake. Furthermore, we wish to add that we have selected Planning Consultancy personnel to deliver lectures on our behalf and we also selected them to advise us on installing a microcomputer for one of our publications, which they have done in a most satisfactory manner.

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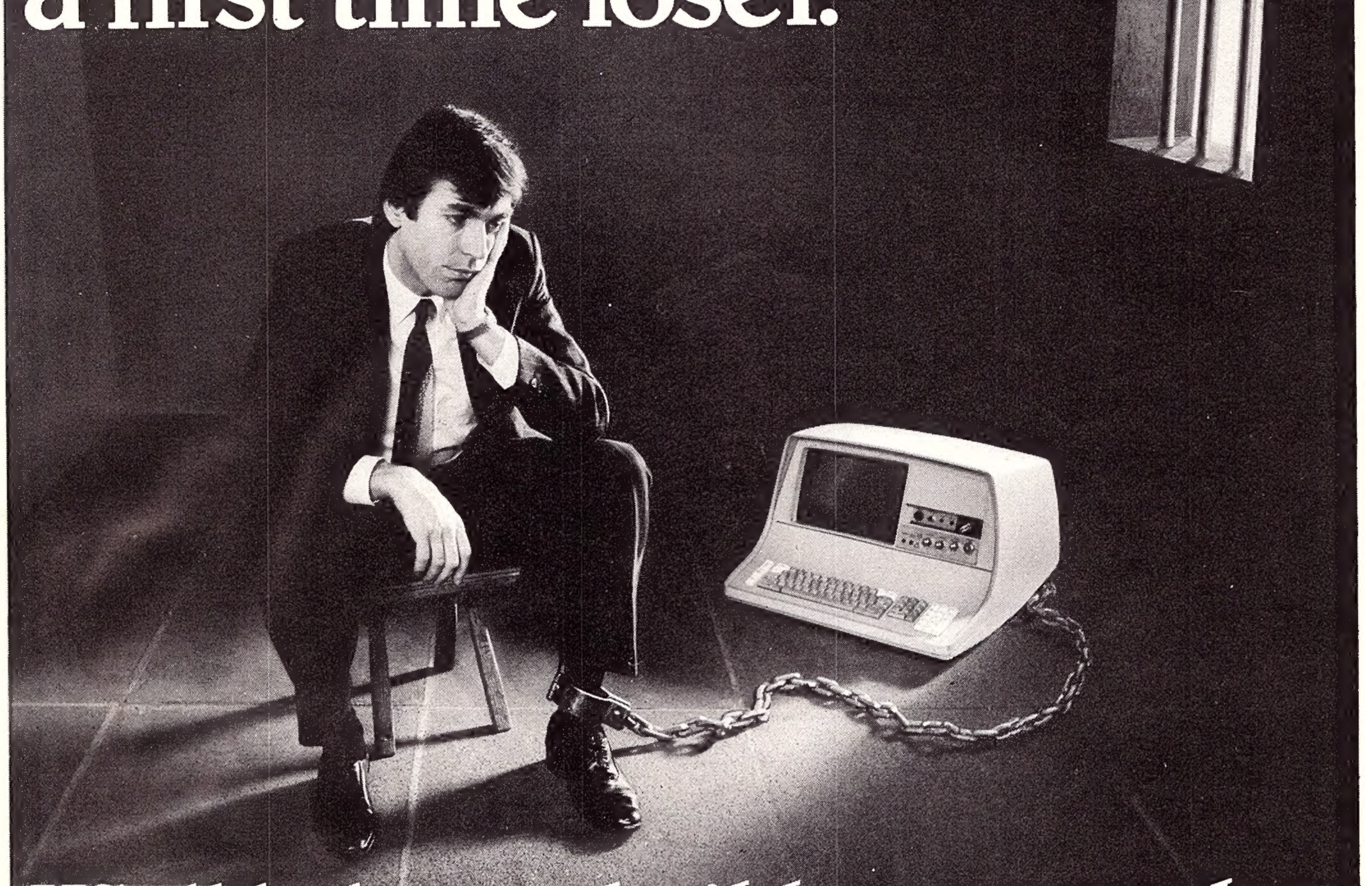

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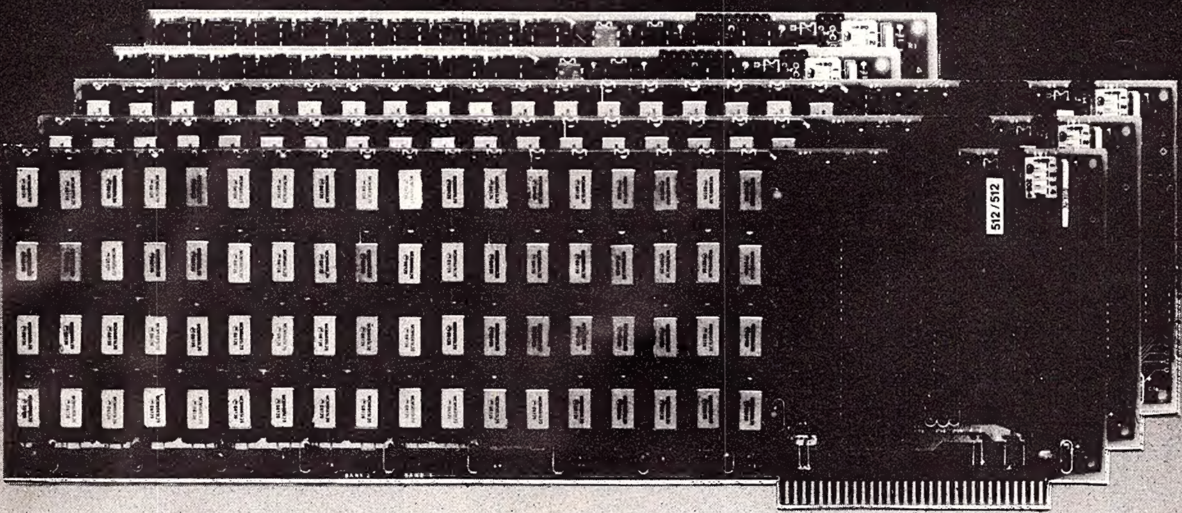

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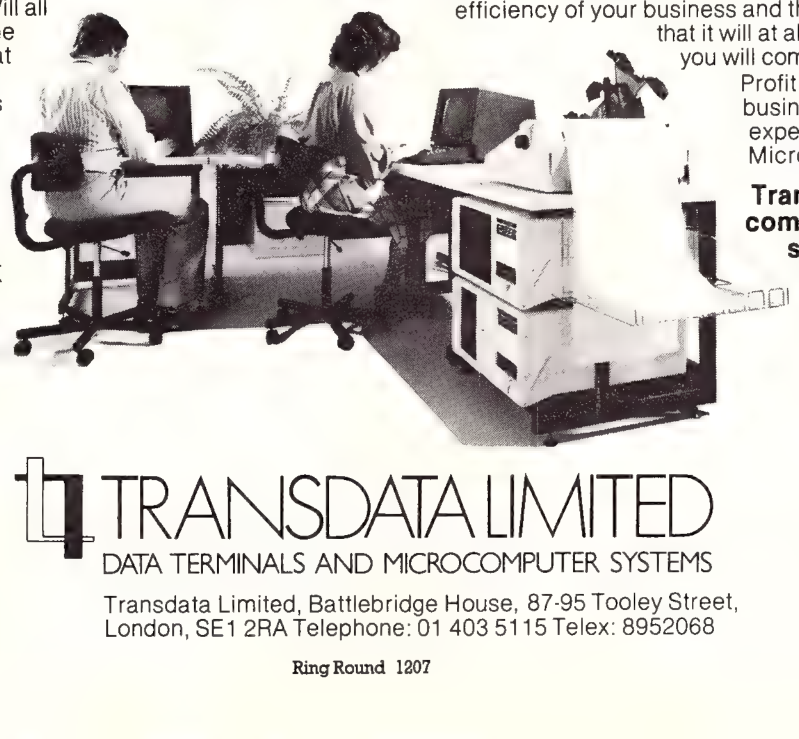

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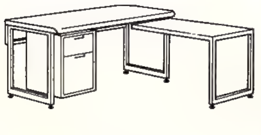

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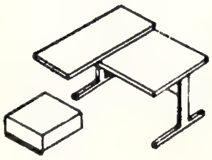

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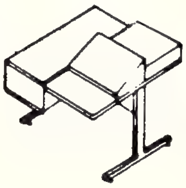

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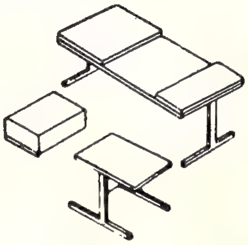

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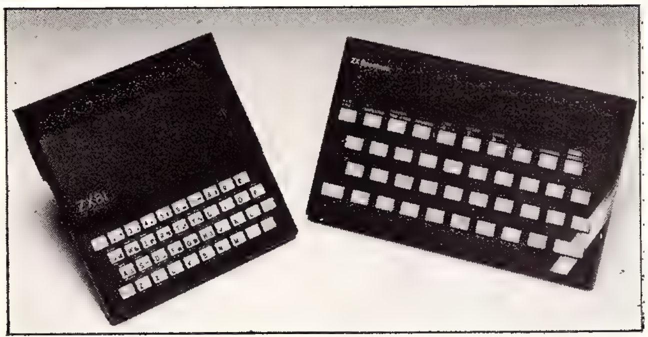


The Spectrum (right): more memory and disks are promised

Sinclair challenges BBC micro

Clive Sinclair has gone ahead and produced the machine he suggested for the BBC Microcomputer – and will market it aggressively in competition with Acorn's BBC machine.

The ZX Spectrum is an advance on the top-selling ZX81, with a 'proper' keyboard instead of the ZX81's touch-pad, colour graphics on a domestic TV set, and between 16 and 48 times the memory space of the unexpanded ZX81. But the price is still only £125 for the cheapest model, going up to £175 for the one with more capacity.

Even more important is that Sinclair is at last going to offer a floppy disk unit, for the Spectrum at least. But as usual, he has gone his own way and chosen to develop a disk 3 inches in diameter rather than the usual 5.25 inch. Still, this small disk will hold as much information as the disk unit Acorn is initially offering for the BBC Micro, and if Sinclair can meet the quoted price of about £50 per disk drive the Spectrum should compete very effectively.

Clive Sinclair's bitterness about the BBC contract going to Acorn is clear, even in the Spectrum publicity leaflet where the internal construction of the new system is compared with the much more cluttered interior of the BBC machine. But his company's decision to go ahead with the computer that people said he couldn't make seems sure to generate the same interest as the ZX81 has aroused among the general public. And once the promised disks, and a promised new interface to allow the connection of any printer to the Spectrum, come out of the labs and onto the shelves the business market should also start sniffing around.

The word you hear from the business is that 'Clive's done it again.'

DEC's Rainbow offers good software choice

Digital Equipment, best known in the minicomputer world as DEC, has finally made its entry into microcomputers – and looks likely to make quite a splash.

The launch of the Rainbow 100 personal computer, combined with two more up-market systems closer to the company's minicomputer line, shows that DEC has learned from its predecessors and has gone for microcomputer 'industry standards' all the way.

The most striking point of the Rainbow is that it includes two microprocessors, the Zilog Z80 and the same Intel 8088 as the IBM Personal, and so can run both standard computer control programs or operating systems – the famous CP/M and CP/M-86. Buying the Rainbow means that the customer gets the widest possible choice of business software.

But for most people the first thing to notice is the pricing; DEC will offer the Rainbow at between £2,000 and £2,400 including the twin-processor computer, display screen, and twin floppy magnetic disk unit. Most important of all, this price includes one year's warranty covering replacement parts, labour and travel.

The famous story about DEC and micros is that Apple founder Steve Jobs went into the office of DEC supremo Ken Olsen and told him that Apple would bury DEC. At the launch of the new systems, Olsen simply said that DEC would now bury Apple; and the Rainbow looks like taking a tilt at IBM as well.

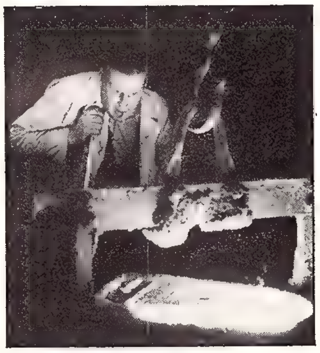
Engineers 'should prepare for micros'

Engineers should cultivate experience of microcomputers now to prepare themselves for the arrival of future generations of machines, according to Chris Clifton, design engineer of the Engineering Sciences Data Unit.

'Engineers,' Clifton declared, 'will be able to optimise design and manufacturing techniques and develop a better understanding of various technical processes.

'Repetitive and error prone manual routines may be automated to leave engineers free to tackle more important engineering issues,' he said, at a recent workshop held by the Institution of Mechanical Engineers and the Institution of Production Engineers.

But this is possible, he stated, only if professionally-produced software is adopted, and until a broad range of evaluated and supported applications packages become available, considerable time and effort may have to be expended in preparing programs.



Micros bring freedom

It is in doing calculations that engineers see the biggest growth area for micros.

Said Simon Morgan of Noble Denton Associates: 'In the two years that we have used micros for engineering we have been asked to perform increasingly more sophisticated analyses.'

Morgan claims that micros are much quicker and cheaper than using the more traditional method of terminals linked to larger computers.

Microcomputer drawbacks such as the slow speed of program execution and the incompatibility of different machines remain unsolved, according to Morgan. 'But', he says, 'we should not be using micros to solve extremely complex problems. The micro comes into its own for the smaller problem, which requires easy data entry and a lot of data output.'

Good design involves the analysis of many alternative solutions to an engineering problem and selection of the designs which satisfy various criteria and standards. Analytical aspects of design and the rejection of designs which do not satisfy explicit criteria can be handled on a computer leaving the designer to apply his engineering judgement to those aspects which are indefinable.

Inadequate manuals and unintelligible demonstrations of micros were two problems met by buyers.

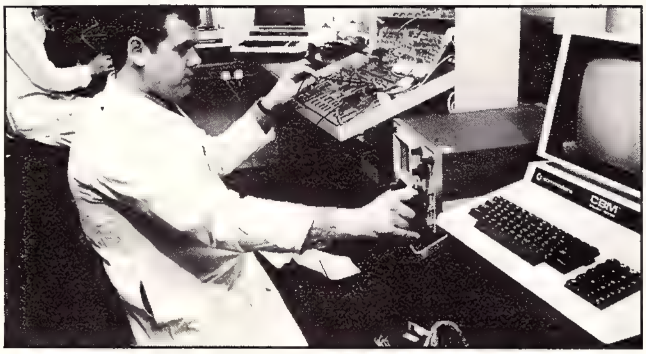
But a major drawback, said one, was the lack of CP/M-based engineering applications programs.

A micro always on hand

A microcomputer servicing facility is now available throughout the country which the supplier claims will provide an ideal solution to the problems of computer maintenance.

The servicing is run by the Peter Williams Group of London through its Business Machine maintenance company, and it claims that it can provide a field service technician to answer a service call anywhere in the country within 24 hours.

According to Glenn Wylie, manager of computer maintenance, every technician is trained for a full range of equipment including all standard microcomputers and printers. 'If we have a contract in a particular area for something more specialised, we will train a technician to deal with this,' he says. 'We wouldn't handle a product if we couldn't give full support and we are very anxious to recruit new people to cope with new systems. We do our best to keep the customer running.'


Repairs can be carried out in the fully-equipped workshops

If a technician cannot repair the equipment on site it is taken to one of several national centres and should be returned in seven days, claims the company. The customer would be given a replacement for that time.

Contract prices are not calculated on a percentage basis, instead there is a fixed price for a particular system with adaptations for new systems.

'We don't work on a percentage basis because we could end up with a different price for everything,' says Wylie. This system means that a maintenance contract for an Apple or Commodore microcomputer with a single disk drive and a dot matrix printer would be £280, and £340 for the same systems with a daisywheel printer.

Details from Peter Williams on 01-855 7104.

Two more low-price machines

Two new low-price microcomputers aimed at the business market have been introduced by Japanese company Sharp. The MZ80A replaces the MZ80K which suffered through not having a standard keyboard.

The other new machine is a tiny pocket computer, the PC 1500, which has a remarkable built-in printer capable of performing quite complex graphics.

The only problem with the MZ80A, which improves on its predecessor with a clearer screen, may be the lack of available business software. 'We are planning some business software, and a converter is available so that MZ80K software can be used on the new model,' says Paul Streeter of Sharp.

The company is also planning an add-on memory which will take it up from 48 Kbytes to 64 Kbytes. There is also a conversion package enabling the Sharp to run CP/M programs – which include most business packages. The basic MZ80A costs about £550, excluding printer and disk drive.

The PC1500, which can print in four different colours, costs £170, while its printer is £150. Later in the year a cassette will be available for it, which will enable users to store programs and data.

For further details ring Sharp Electronics (UK) 061-205 2333.

Getting dealers over the DMS hurdle

Concerned over the way dealers are handling the sale of the records management program DMS, software house Compsoft has set up free training courses for dealers at its own training centre in Surrey.

According to Heather Kearsley, marketing director at Compsoft, there have been a 'fair number' of complaints from end-users of DMS who have not been given enough advice and help from their dealer.

'I don't want to insult our dealers, but there seem to be a lot of dealers in the UK who are totally unable to advise potential buyers what they need to do the job. The customer is often left quite unable to manage the system.

Kearsley feels that dealers fall into three categories: good ones, those who don't have a computer background and who want training, and cowboys.

'If our dealers are interested enough to do the course then we will help them, because we want to sell our product through responsible dealers, but if they aren't interested in training we will not give them the sort of help we usually offer our dealers,' says Kearsley.

The training will be one free day of practical work on application areas, usage, demonstrations and sales techniques. Each course will run monthly and will cater for a particular level of expertise. Advanced courses will be offered to programmers and data processing personnel.

Training in both DMS and Wordstar will also be offered to end-users or prospective users on a monthly basis from £75 and no previous knowledge or experience is required.

Details: (0483) 898545. See also our feature on an unhappy DMS user, which begins on Page 107.

Courses for DMS end-users

Focus on the manual

One of the most common complaints levelled against micro systems for business is that the documentation is incomprehensible. Recognising this, a new company called The Microcomputer Business (TMB), is marketing software with the emphasis placed firmly on high standards of documentation.

TMB has started with a general ledger package, which has been taken up by Tandy and is being sold through its dealers throughout the country.

Says director, Phil Kellingley: 'We looked at the accounting side of microcomputer software and what was on the market was appalling,' he says. 'A lot of business people got burned.'

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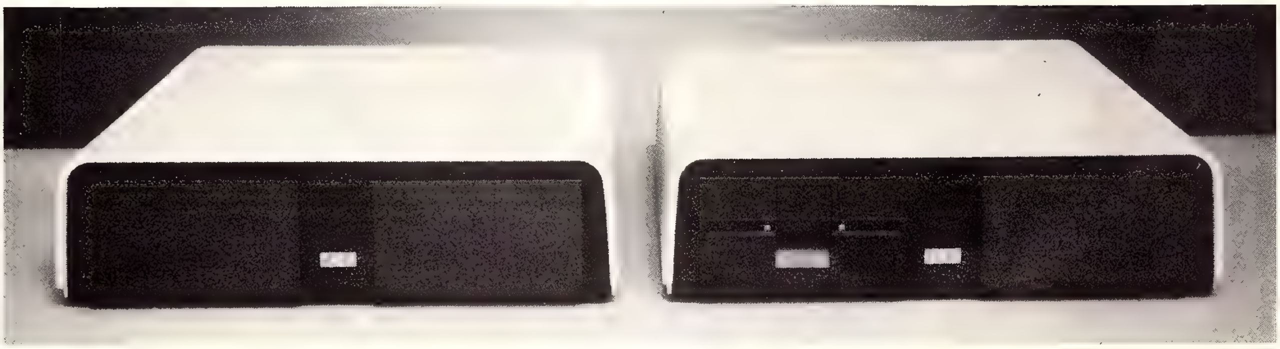

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Business Desk is available from Microcomputer Dealers and Systems Houses throughout the UK.

Dealer Enquiries.

Dealer enquiries for Business Desk are always welcome. Talk to Jason Brown or Gareth Jones for full Dealer information.
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Dealers unhappy with BBC

The BBC Microcomputer is 'the greatest disaster ever to happen to British computing', according to one of its dealers. The BBC Microcomputer (manufactured by the UK company Acorn) is causing growing concern among dealers who are unhappy about the way in which its distribution has been handled, and the reliability of the machine itself.

Acorn makes the BBC micro, and Terry Gasking, boss of Tarace, an Acorn dealer in Buckinghamshire, claims that he had 20 calls in one week from people whose BBC micros had broken down.

'The BBC micro has the highest rate of error I've seen in a machine in 15 years,' he says. 'I would not be prepared to handle a machine with that error rate, even with a full profit margin.'

Acorn is supplying the BBC micro to its dealers at a price which does not allow them to make a profit – a controversial move.

One dealer claims it has been suggested that dealers buy from Acorn like an ordinary customer and then add something on, but feels that dealers who do this will price themselves off the market.

The BBC Microcomputer is causing concern among dealers

Gasking feels that the BBC has handled the project wrongly right from the start. 'Last September a meeting was held for dealers to look at the first production model. We tried to put all the problems we foresaw to Acorn, including the problem of dealership, and we were told that this was the responsibility of the BBC. There was no-one from the BBC at the meeting so I requested that the managing director of Acorn should come to the afternoon session of the meeting, but he never came.

'When I complained to the director general of the BBC, he absolved the BBC of responsibility. It seems that once they've sold the machine and got their profit margin they don't care.'

Sandy Dow, sales manager at Acorn, disagrees with these criticisms. 'There is no such thing as a BBC micro dealer. No dealer was in fact asked to sell the BBC machine; if they want to sell it they can do, but without a profit and 90% of Acorn dealers agreed to have a demonstration model. Due to the licensing agreement with the BBC at their insistence the only way the machine can be sold at a profit is by mail order, although we are trying to change this.'

Dow is 'rather surprised' that the reliability of the machine should be questioned. 'Obviously the reliability is not as good as we'd like it to be, but the difficulties are negligible compared with the numbers sold,' he says. 'The BBC should not involve itself in the reliability problem; Acorn should take full responsibility for this'.

Eileen Mullen, press officer at BBC Enterprises, says the question of retail margins should be decided by Acorn and the dealers, and was not part of the BBC's licensing agreement with Acorn. She explains that a dealer margin had not been part of the marketing plans because demand for the machine had originally been estimated at 12,000 over the two years that the TV programmes would run, and since this would not have been a high enough volume to interest retailers only mail order sales were planned for.

On the question of responsibility for quality, Mullen says that the BBC has a weekly liaison meeting with Acorn, and that the BBC has a 'steady interest' in quality control and after-sales service. She feels that this kind of project, with many first-time users, naturally throws up more problems, and is optimistic that a lot of these will disappear when a revised user guide is published.

Acorn has now set up a central service centre in Middlesex.

And it's not plain sailing for the users either ...

Another problem is now dogging the immensely popular BBC Microcomputer. The problem involves difficulties in loading the program from the introductory cassette onto the microcomputer, and the maker, Acorn, admits it is a common one.

Martin Grantham of the educational services department at Acorn claims that the problem lies with the instructions on wiring the cassette recorder to the micro, in the provisional user guide, and admits that these are 'not clear enough.' But they will be changed in the new guide.

Peter Loweth got his BBC Microcomputer last March. He ran about a third of the program on the introductory cassette before it refused to run any further.

Acorn agreed to send a replacement cassette, but this never arrived. Loweth contacted Acorn again and was told that he should send the computer back to Cambridge to be examined. He was unwilling to risk sending it, but offered to bring it over himself. Acorn would give no guarantees that it would be repaired while he was there and could only advise him to wait until its dealer network had been finalised.

Acorn eventually gave Loweth the number of Eurocalc, a London-based dealer who Acorn said was equipped to deal with the problem.

But Eurocalc told Loweth that it had not yet signed a contract with Acorn to service the BBC Microcomputer and that it would have to charge him £25 to cover costs. When Loweth contacted Acorn he was told that no-one who had been referred to Eurocalc in the past had complained, and Acorn refused to give him the names of other dealers because it 'didn't want him to be disappointed.'

According to Steve Grantham, sales administrator at Acorn the problem arose out of a 'misunderstanding' at Eurocalc, the company *was* actually acting as a dealer for the BBC micro.

According to Alec Cross, director of Eurocalc, Acorn had given a 'standard answer to a standard question'. It had been decided that retail outlets already selling the Acorn Atom were to sell the BBC Microcomputer too, but not at a profit.

Cross claims that dealers cannot do this *and* give customer satisfaction. 'But we decided to do repairs for a fixed £25 fee or send it back to the manufacturer,' he says.

Eurocalc has now agreed with Acorn that it will repair the BBC micro under guarantee, send the serial number of the unit back to Acorn and charge it £10 plus the cost of all spare components used.

Eurocalc has now repaired Loweth's micro under guarantee.

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Departing Metrotech loses one customer

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Ryman was not satisfied with the Metrotech teams who were working in its stores

As more and more microcomputers appear in the high street stores, at least one customer has found the service provided by such a supplier disappointing.

At the end of last year, Boulevard Tableware, a London company selling tableware to wholesalers and retailers, decided it wanted a micro to help with stock control. And for convenience it turned to a local Ryman shop where equipment was being sold by the dealer Metrotech. 'To begin with,' says Carmel Chadwick, branch accountant for Boulevard, 'it was a joke trying to get the Metrotech staff to serve us.'

Eventually, however, when they got attention, an Apple-based system was recommended, and a 'firm' quote was given, but verbally. Boulevard consulted its office in the US and got the go-ahead for the purchase, but when Chadwick approached Metrotech, only a month after the original quote was given, she was told, 'We didn't mean that quote – we didn't put anything in writing.'

Metrotech then persuaded Boulevard to go for an NEC-based system instead, and together they went through the procedure which was involved in obtaining the equipment. 'Except,' comments Chadwick,' no-one mentioned that we would be expected to pay cash on delivery.'

Metrotech was told to expect a purchase order in the near future and a delivery date was provisionally arranged.

'Two days before this delivery date I rang Metrotech to check that all was going as planned, only to be told that a purchase order had not arrived, so no arrangements had been made. They hadn't contacted me at all to find out what was going on,' says Chadwick.

So a new purchase order was sent. 'I heard nothing though,' says Chadwick. 'I phoned and phoned and eventually someone from Ryman answered and said that Metrotech had gone, moved. But they hadn't told me they were going.'

She contacted it at the new address, and someone there told her, 'Oh yes, we saw the purchase order floating about and wondered what to do with it.'

Boulevard still wanted the machine and continued with the purchase. But Metrotech's next surprise came when it told Boulevard about the COD term. 'I told them "no way". I told them they could have seven days to check the company's credit, and during that time we could make sure that the machine was working,' explains Chadwick.

The salesman told her that this was not normal practice, but said he would talk to his people and phone her back, but again, she heard nothing. 'I wrote them a strong letter and asked them to reply within seven days telling me whether or not the deal was on. But I never heard from them again,' says Chadwick.

So Boulevard is now purchasing an NEC machine through another company. 'But it is too late,' says Chadwick. 'We wanted the system installed by the time our American bosses came over. That is now impossible.'

How unreasonable was Metrotech's behaviour though? According to Ian Dunkley at the Computer Retailers Association, Metrotech cannot really be blamed for some of its actions. He says, 'Lots of customers tell firms to expect a purchase order, and then they never contact the firm again. They're often just playing one dealer off against another. So I can understand Metrotech's action there.

'Second is the point of cash on delivery – this practice is common in the industry as the margins on micros don't allow firms to bear a lot of credit. So I can't criticise their refusal to change their pay terms.

'But I have no explanation for why, on so many occasions, contact was not made. I'm surprised that a potential customer was treated in this way.'

Metrotech itself has now moved out of Ryman and is selling equipment on a mail-order basis from its Uxbridge office. Says Paul Smith at Metrotech, 'It is probably better that the company concerned obtains its system elsewhere because we are no longer in the situation to supply some of the facilities we offered when we were in Ryman.

'The problems Boulevard had obtaining the equipment arose for several reasons,' says Smith. 'For example when we moved out of Ryman there was a lot of confusion. People were laid off and these, in some cases, were the people who had all the contact with the clients.

'Then the purchase order we finally got arrived very late, and when it did, it was addressed to the wrong department.

Stephen Billyeald, merchandise director of Ryman, affirms that it was 'not at all satisfied with Metrotech'.

He explains: 'Metrotech was in two of our London Branches – Great Portland Street and Holborn – but moved out in March. We were dissatisfied with them on two levels – the way they were dealing with their customers, and the amount of business they were doing.

'We *do* intend to develop the computer business within Ryman, but will be controlling the business ourselves next time.'

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A powerful recommendation

Apple III has been well received by the professionals – *Which Computer* in January 1982 said: 'It is clear that the ProFile™ (Apple's hard disk data store) and Apple III offer a very attractive system for the business user… there are few systems which offer as many features in a standard system.'

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Viewdata link-ups

Two new interfaces are now on the market, which allow microcomputers to link up with Prestel or other viewdata systems.

The first, from Triumph Adler, has been developed from the Prestel interface developed by ACE Electronics, to allow the Adler Alphatronic microcomputer to link up with viewdata.

Cost of the Triumph Adler interface is approximately £250 plus VAT.

The second, the Owltel interface from Owl Micro-Communications, does the same for the Apple and costs £395 plus VAT.

Details from Owl Micro-Communications, 0279-723848, and Triumph Adler UK, 01-250 1717.

Prestel for Adlers and Pets

Personnel on Payper

A system called Payper which is now on the market has been designed to allow firms access to both payroll and personnel records through desktop microcomputers.

It has been developed by MJN Consulting and Tarmac Building Products, who claim that before Payper there was no such multi-user capacity running under MP/M for microcomputers. Payroll information is delivered to the banks on an eight-inch floppy disk that is compatible with the BACS system.

Apart from payroll and personnel the micro can also handle word processing.

Payper costs £2,000 which Michael Norman of MJN agrees is expensive, but the system, he says, was priced as a result of careful development.

'There is a lot of cheap software around, so we wanted to make this good and flexible. We didn't want to go bankrupt because we couldn't sell enough systems to cover our production costs,' he says.

Details from Tarmac PLC, (0902) 41101.

Printer interface

A new interface, the Multiple Printer Access (MPA), which it is claimed will allow four computers, word processors and terminals to share one printer with no manual intervention, removing the need for separate printers for separate devices, is available from ABS Computers.

The MPA can support any serial printer such as a matrix or daisywheel printer and any other device with an industry standard V24 interface. Cost is £190.

Details from ABS Computers, 04862 70516.

Golf club package

Another program for golf clubs has come onto the market which, it is claimed, will be able to cope with the proposed change in handicap calculations.

'Golfpak' from Polymath Associates in Dyfed, runs on the Commodore Pet, and also deals with normal accounting functions and membership details.

The complete package including a dot matrix printer of the customer's choice and four to five days of on-site training costs £4,500 plus VAT, but it is worth noting that two other packages which were mentioned in the June issue of *MicroDecision*, from ERA Consultants of Stockport and DD Systems of Blackpool cost £2,500 and £2,850 respectively including printer.

Details of 'Golfpak' from (0239) 810867.

Handicap rules calculated

Indexing system

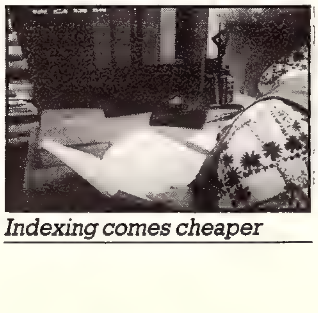
A new system for indexing on a microcomputer will be released in August by Farestead Associates of Hemel Hempstead.

The system, which is called Microindex, will run on the Commodore Pet or the Apple, and a CP/M-based system is also under development.

Farestead Associates already offers an indexing service which it is claimed can cut the indexing time from weeks to hours.

According to Shirley Low, a business partner at Farestead Associates, an 800 entry index would take six hours plus proof reading, and an index of 750 page entries would cost £50-£60 to compile.

Details available from Farestead Associates (0442) 51708.



Indexing comes cheaper

US word processor

A newly-formed London software company is about to introduce a CP/M word processing package developed in the United States.

Palantir, which costs £238, will be marketed by Developed Software Products who will be offering support in the UK and Europe.

Details from Developed Software Products, 01-606 3512.

Worksheet on Xerox

A new worksheet software package for the Xerox 820 microcomputer will be available from July.

The package, which is called Multiplan, has been written by Microsoft Corporation of Washington and will cost £175.

Rank Xerox says this is the first stage of a continuing product line of Multi-Tools from Microsoft for the Xerox 820 microcomputer.

Multiplan automatically links worksheets, supplying information to a master sheet from numerous different worksheets and allows the user to interchange data from other packages. It can read VisiCalc files and personal programs can also be integrated.

Multiplan runs on Xerox 820

Correction

A recent *MicroDecision* article on micro systems for pharmacists featured the widely used Microscript program. Unfortunately the Microscript phone number was given incorrectly. The number is 01-743 9000.

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One way to take the strain

A new company has been set up to ease the often-strained relationships between manufacturers, distributors and dealers. As everyone in the business knows, dealers have a go at distributors, who in turn slag off the manufacturers, and the customer comes last as usual.

Now the new firm Dealer Deals, will try to sort all this out; and the founder of the firm, John Clarke, should certainly recognise the problems. He was formerly head of European marketing for Japanese giant Nippon Electric, and then paid a flying visit to Tim Keen's Keen Computers as marketing supremo.

The idea of Dealer Deals is that it will offer manufacturers things like an independent sales force and promotion team, a bumph distribution service, training seminars and also, more sinisterly, confidential reports on the suitability of dealers to handle the products.

What the dealer gets out of it are introductions to manufacturers, and cheap supplies of things like disks and monitors from Dealer Deals' contacts. And one interesting thing the dealer can get, if he is that way inclined, is the services of a team of sales promotion persons (well, girls actually) who will, presumably, drape themselves over the bonnets of the machines in the dealer's shop.

John Clarke says that the company will 'fill the gap between manufacturer and dealer', a job that will require the attributes of a combination of Francis Pym and a FIFA referee with his notebook handy.

But to the customer, the gap between the manufacturer and him or her seems big enough already. Didn't the Health Service just remove one level of administration?

Price of the month

A couple of things this time, which we hope don't paint a general picture. The things in question are ready-written packages for the popular CP/M microcomputer control program.

It seems that at least one dealer is finding it cheaper to buy the two packages in question, one a financial modelling product in the VisiClone market and the other a database management system, on the West Coast of the US rather than from the UK agents.

'Even with the shipping and everything, I can still sell them cheaper here than the UK agent does,' the dealer told *MicroDecision*. And it is not as though the packages are 10 a penny in the US, since they are popular there and hard to get hold of.

Moral? If you have a micro running CP/M as its control program, shop around for program packages. The main importer might not be offering the best deal.

Micros are new TV stars

Odd things are going on in the world of TV. The programme makers have discovered the potential of computers to give a modern gloss to their opium of the masses.

Careful TV watchers will have seen various examples of this in recent months. Two episodes of 'Dallas' have had a Tandy Model III in the background.

The ads are not immune either, a Commodore Pet featuring in the set of a 'pure new wool' commercial.

Most spectacular of all, the BBC series 'Bird of Prey' was concerned almost entirely with computers.

But when the hero was using his micro to crack various big systems, the carelessly strewn boxes and packaging implied a very strange system indeed. The micro he was actually using was a carefully disguised Sharp PC-3201; the box it was supposed to have come in had once contained a Sharp MZ-80K; another empty box looked very like the casing for a Commodore modem; and an Apple floppy disk was sitting on the sideboard.

Anybody who could make that lot work together would be a hero indeed.

Let-down for the customer

Sad news from Micro Networks, a dealer based in London's fashionable Pall Mall. The company had proudly announced that the CompuStar network system, made by Superbrain originator Intertec Data Systems in the US, had had its prices cut by 30%. And indeed it has. But Micro Networks did also plug a money-back guarantee scheme, almost unknown in the micro world, but this we are afraid is just not so.

It seems that the London firm 'misinterpreted a recent communication' from Intertec – the money-back guarantee does exist, but it only operates for the dealer. If Intertec delivers a duff CompuStar system, the dealer can get his money back; but the customer will have no such luck.

This is a real shame, since what the micro business lacks is some security for the customers who are actually buying the things.

And as for the price cuts on Intertec hardware, one dealer who sells Superbrains alongside the new Sirius 1 tells us that customers are looking at Superbrains at about £2,400, comparing them with the more powerful Sirius at the same price, and making the obvious choice. The Superbrain price has thus been cut by 20% since 1 May.

This free market competition stuff does have its good points sometimes. Although even if the customer is paying less, it would be nice to get a money-back guarantee too. Is this really too risky?

Rumours of IBM launch

By the time you read this the fuss might all be over; but then, that's one of the hazards of getting scoopettes on a monthly. However, at press time the word is that IBM is to launch its Personal Computer in the UK during June – long before most people expected.

Our source told us that the launch will be in London only, meaning that you will see the machine at the IBM stores in Wigmore and Victoria Streets. But the word is that the giant is also recruiting and retraining a direct sales force to sell the Personal to large-volume customers.

No mention has been made of the 'unofficial' importers and sellers, MicroComputerland.

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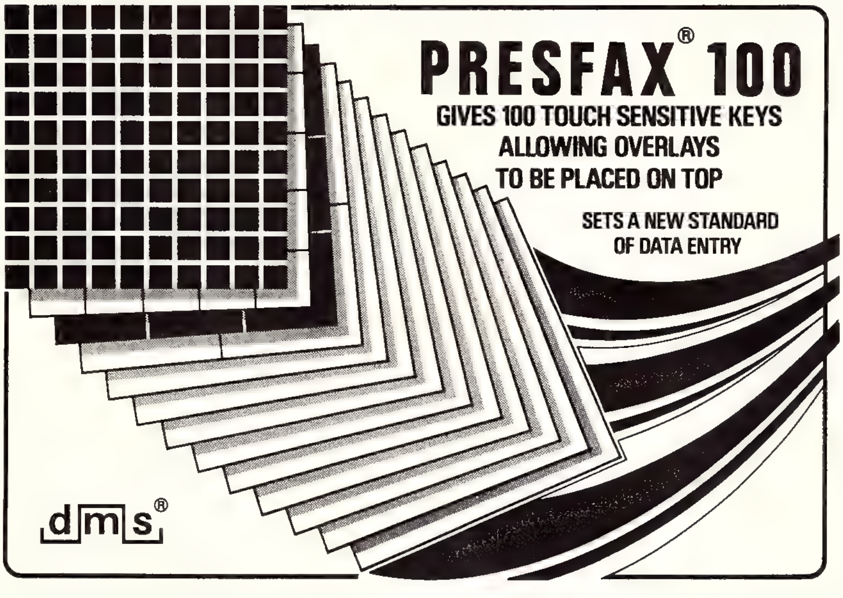

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The board is SRBP which will withstand severe handling and can be used or mounted at any angle. The touch surface only requires light pressure to operate it and is plastic film which can easly be wiped clean. The Keypad is connected to the Apple II Computer with a 1 metre length of Ribbon Cable.

The key grid can be covered with the user's own overlay which can be varied to suit the type of application required. These can be made by printing or painting any symbols onto ordinary A2 sized paper, e.g. Large Alpha-Numeric Characters, Braille, Specialized Symbols or Pictures, etc. Small objects may also be stuck onto an overlay to operate the Keypad when they are touched.

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The driver software is provided on a 3.3 DOS Disc complete with full instructions on how to incorporate it within the purchaser's own programs. Several demonstration and educational programs are also provided to stimulate the imagination on how to utilize this new and easy method of data input.

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'You don't need a licence for one...'

The BBC's 'Bird of Prey' series starred Ann

CHRIS RYAN

A large lorry is blocking the narrow street. The ambulance is forced to stop. The drivers get out to see what is causing the hold-up.

Meanwhile two motorcyclists draw up, wearing crash helmets with dark, inscrutable visors. They draw out pistols, each with a silencer attached . . .

They dismount, walk over to the ambulance, pump several bullets into the helpless patient inside. With the same ease, they drive off, disappearing into the London traffic.

Cut to: still shots of the victim, bug-eyed, his mouth and nose plastered in gore.

So died another of the cast in the recent BBC 'Bird Of Prey' TV serial, a thriller written, so it said, for the 'electronic age'.

As if to emphasise the point, each episode started with a Space Invader-type motif, with little civil servants in bowler hats being digitally bumped off by crooks with pistols.

Whether you liked the serial or not, there is no doubt that this was something new.

> One point made by 'Bird of Prey' is just how vulnerable the large organisations have become

It is the first time television has ventured into the world of computers in any substantial way. The series was about an international conspiracy involving the manipulation of computers. It was about our vulnerability in the electronic age. It was about the individual pitted against the system. This is a radical departure for TV.

So far, as 'Bird of Prey' director Michael Rolfe himself admits, TV writers have shied away from computers as a theme, because they don't understand them — and neither do most of the viewers.

And such is the gestation period for TV drama that an idea can take up to five years before finally appearing on our screens.

However, sooner or later even the BBC had to reflect the growing importance of computers in our lives. Of course, it has gone for a traditional diet of 'thrills' and violence, but the theme is indisputably to do with computers.

'It's undoubtedly more than just a thriller,' says Rolfe, meaning that it concerns the crucial issue of data security, which now affects all our lives.

Computers control our bills, our bank accounts, even our reputations with the police . . . We can now go through life, being refused jobs, refused entry to various organisations, merely on the evidence stored on a computer.

Large companies are now almost totally computer-controlled; their accounts, their files are all centralised in big mainframe computers. The power of the data processing departments has become enormous. If the central computer breaks down — or is sabotaged — a company can be helpless.

As if this wasn't worrying enough, the widespread proliferation of microcomputers has complicated the issue.

It was suitable and significant that Harry Jay, the bumbling civil servant hero of 'Bird of Prey', should have used a micro in his single-handed bid to fight a network of international crime.

A microcomputer saleswoman listed the extraordinary crimes the possession of a micro system opened up to the hero of the series: 'Input manipulation, program alteration, manipulation of masterfile . . . Extortion, theft, invasion of privacy . . .'

'You still sold it to him?' asked the incredulous policeman. 'You don't need a licence to buy one of these . . . yet,' replied the saleswoman.

Together with investigative journalist Rochelle (played by Ann Pennington) Henry Jay was able to use one of the commonest of micros – the Apple II – to grapple with huge organisations and their massive electronic collections of information.

In his lonely bedsit, he was able to tap the large computers of the big firms in question, using a telephone, and interpret the information on his micro. Merely 'knowing how it was done' he was able to become privy to information which companies spend millions trying to protect.

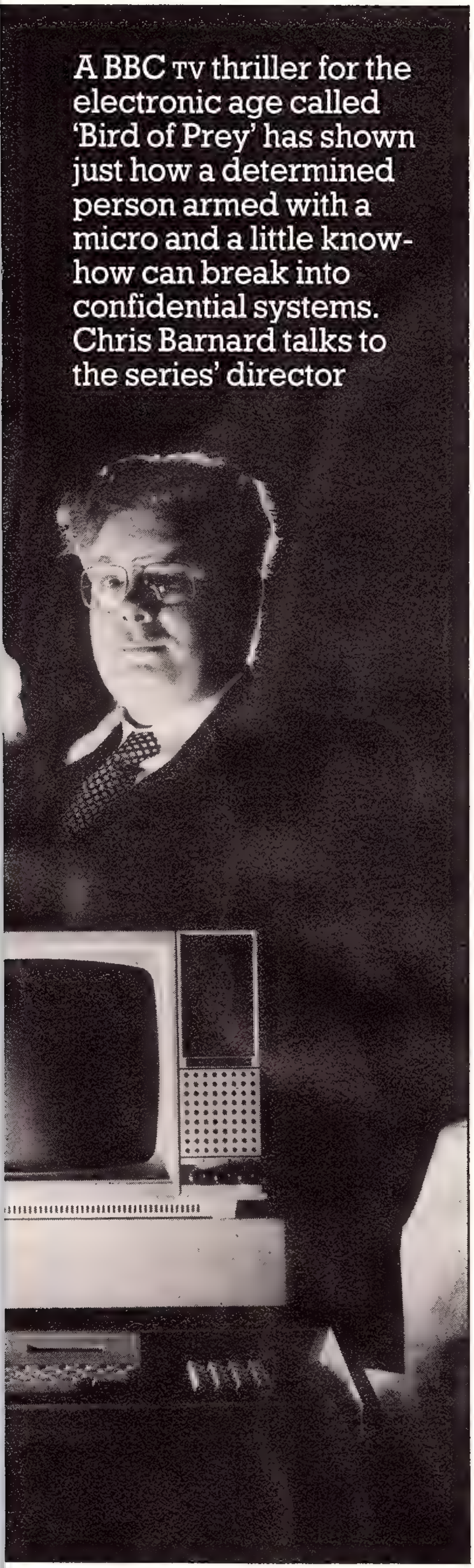
Of course, Jay was a 'goodie' but the point was obvious; just how vulnerable large organisations are these days. Rolfe insists that he has it on expert advice that what Jay did is feasible in real life — if with a little embellishment.

But it is not only large companies which are vulnerable. The proliferation of micros in small and medium-sized businesses, as well as departments of organisations, means that all kinds of new and unusual types of crimes are possible. Crimes which people are unprepared for and ill-equipped to cope with.

Examples of such crimes, of course, are hard to come by. Internal security is a sensitive issue – and this makes the problem all the worse.

A sales department in a Manchester-based firm bought a Superbrain to bring order to a chaotic operation. Each salesman had his own leads, his own way of

A BBC TV thriller for the electronic age called 'Bird of Prey' has shown just how a determined person armed with a micro and a little know-how can break into confidential systems. Chris Barnard talks to the series' director



Pennington and Richard Griffiths

doing things, and often they clashed and tripped over colleagues' toes. This led to a lot of wasted time and effort. The sales manager had the bright idea of using the new micro to centralise all the different information coming in from salesmen on different clients and prospects, and thus co-ordinate their work with spectacular efficiency.

Unfortunately a person in another department, realising how easy it now was to get hold of sales information, crept into the office one lunchtime and got a print-out of much of the data held in the computer. He then sold this print-out to one of the firm's competitors for a large sum.

The firm found out about the computer crime (almost by accident) and instantly fired the man. But simply because it was worried about exposing the inadequacies of its own internal security and upsetting its clients it did not give him bad references and the man secured an excellent position in another firm. Where presumably he is waiting for another micro to be installed full of valuable sales facts.

Despite manufacturers' claims to the contrary, computer systems can be laughably easy to 'break into', given the necessary technical knowledge. One computer auditor attached to a large multi-national in the building business, has boasted to *MicroDecision* just how easy it was for him.

For obvious reasons, he prefers to remain nameless. 'I was just doing it for a laugh, really, just to prove how easy it was. I was able to access secret files. I had an interesting time comparing my salary with that of my colleagues.'

This particular auditor believes that the answer to this kind of vulnerability is increased human security; tougher regulations about who, and who should not, be allowed alone into the computer department.

'I know lots of systems programmers, for example, who seem to find it necessary to be there at five in the morning, testing some work. Now, I'm sure they're all honest, but it only takes one rotten apple . . .'

With the increasing use of microcomputers in small businesses and in the departments of larger companies, the task of auditing — and guarding against fraud — becomes at once a different and more complex ball game.

Often where micros share common databases* there are security passwords to prevent unauthorised staff accessing confidential matter. And yet it is widely admitted that nothing can stop a determined and competent crook.

With the upsurge of micro power we are seeing the phenomenon of 'fragmented processing'. Whereas before the power was located in one centralised place, it is now being spread all over the place, onto executives' desks, into the factories and warehouses.

Although this means dissipation of vital information making the task of the crook in some ways more laborious, it also increases vulnerability.

Small businesses and the professions are taking up computing for the first time. They are inheriting the same problems. Already, considerable disquiet has been voiced within the medical profession about the increasing trend to putting patients' files onto microcomputers.

This is already the case, of course, within large hospitals. Plans to link the GP's micro with the hospital's mainframe may have attractive technical advantages, but the possibility of these lines being tapped is a real one. We all know what some newspapers will print about people in prominent positions. This is only one example among many of possible abuse.

By transferring your files to electronic storage, you may, in fact, be making it much easier for a crook or any unauthorised person to locate information about your business.

The dissipation of vital information within a company increases the risk of criminal abuse

Sophisticated security procedures such as passwords are available. But often they only make systems all that much harder to use for the legitimate operators.

The days of microfilming dusty files under a flashlight may be over. A character armed with a modem, an analogue to digital converter and a knowledge of software security will be the latter day 'Danger Man'.

If all that seems too cloak and dagger, don't dismiss it yet. We are perhaps seeing the creation of a new elite in society. In the middle ages, the ability to read and write belonged to a dominant class. It is still the case that literacy and the ability to write and speak 'properly' open doors denied to others.

Could it be that the new dominant class will be versed in computer literacy? The ability to program and manipulate systems? Perhaps we should all be learning Basic, for self-protection. ☐

***Database:** a system which allows you to store information centrally and retrieve it for different uses by manipulating simple commands.

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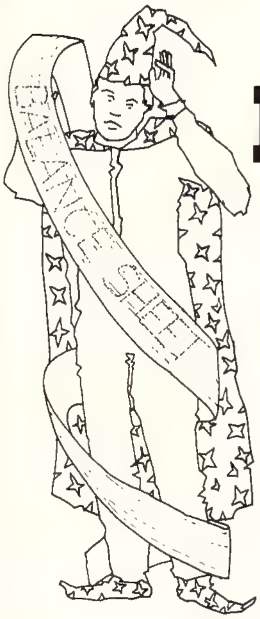

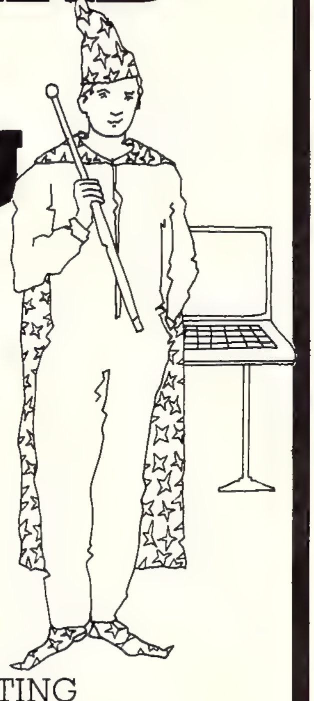

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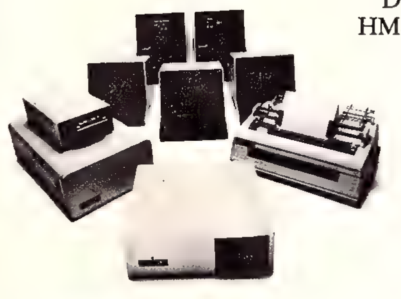

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False dawn for Japanese

Don't overestimate Japan, says Peter Jackson

Listen to the pundits, and you will be convinced that the big Japanese firms are just girding their loins to take over the entire microcomputer business from the US. Japan Inc, that all-mighty conglomerate of names like Hitachi, Matsushita, Sony, Toshiba and the rest, is getting set to sweep the Apples and Tandys off the board.

But is this really the case? The evidence so far points to a rather different conclusion.

It is true that the Japanese firms are at present wiping the floor with the US leaders in chip making, and the argument goes that once they start in earnest to turn these chips into microcomputers, the competition will be too much to bear.

But chips and computers, despite the fact that one is made out of the other, are completely different entities. Being good at making the chips is no guarantee of being good at making systems out of them – and the signs are that the Japanese recognise this better than the pundits do.

The reasons for the Japanese companies' new dominance in the chip business – in the memory chip business at least – are the same as for Japan's pre-eminence in television sets, motorcycles, hi-fi equipment. Those reasons are good design, copied or home-grown, superb quality control during manufacture, and low prices deriving from high-volume production. Japan can out-quality and out-produce any of the major US chip makers like Intel and Motorola. In memories, where production yields and volumes are the main factors in prices and sales, the traditional Japanese engineering skills – traditional since the War at least – come into play and give dramatic results.

But Japan does not really have innovative companies that can produce chips like the Motorola 68000 microprocessor.

This lack of leading-edge chip design skills is shown most clearly by the fact that no Japanese company has come up with a home-grown mass-market microprocessor like the Zilog Z80. The processor chips used in the Japanese systems might have unfamiliar type numbers, but they are in fact US designs made under licence; for instance, Nippon Electric's PC-8000 system uses NEC's version of the Z80A.

Apart from this lack of innovation, the Japanese companies have two major problems.

The first is language, since according to commentators on Japan the lack of a standard way of displaying Japanese characters on a computer screen has slowed down the emergence of personal computers there.

The second, more intractable, ▶

ROBIN MACFARLAN

Pundits predict the Japanese micro sun is rising – but is it really a false dawn?

'The Japanese do not know how to market computers in the US,' says Mark Takeuchi

▶problem is linked with the first and is simply a lack of good programs for the machines. And as the earlier entrants in the microcomputer market soon found out, software sells hardware.

And the Japanese systems are by no means the leaders on price or performance – particularly when compared with the £1,250 Osborne 1 with all its free software.

In fact, the pricing strategies of the Japanese computer makers are remarkably cautious. Once again using NEC's PC-8000 as an example, the basic computer costs about £450 in Japan. When it was launched in Europe the marketing policy had changed to emphasise the use of the computer for business, and the price had been set to match at £600. That 'set to match' is no misuse of words either, since the £600 figure was chosen to sell on level terms with the Apple II, but offering more sophisticated facilities.

Panasonic, part of the giant Matsushita group, also came into the UK market with its JD800 series of machines. Nothing particularly special about them, but the prices are still high. Panasonic is now taking the line that the extra money is worth it because of reliability and speed of customer service.

And Panasonic's latest move, shown off at the Hanover Fair in Germany recently, is to launch a system that seems to works just like the IBM Personal and Sirius 1 systems from the US. The price is yet to be set, but it will certainly not undercut IBM and Sirius by any appreciable margin.

And there are more IBM Personal look-alikes in the pipeline; one from Hitachi was recently unveiled.

The Hitachi machine is to be sold in the US by CIE Systems, a California firm set up by C. Itoh three years ago. And CIE is an example of the way Japanese firms are approaching the micro business. All its products, apart from the Hitachi IBM-clone, have been designed in the US and are marketed by the US company, although all the manufacturing is done by Japan.

CIE president Mark Takeuchi says significantly: 'The Japanese do not know how to market computers in the US' – and that is despite any problems with trade barriers.

Prices? CIE's systems are set at the same level as the existing US competition.

The only Japanese company to make a dent in the UK micro market has been Sharp, whose MZ-80K system was at one time the third-fastest selling computer in the country.

But the design was rather weird; an integral cassette recorder and a calculator-like keyboard that would drive typists out of their minds. The price, this time, was competitive and a lot of MZ-80s went out.

Sharp's success with the machine, which instantly caused a flood of UK-produced programs for it – CP/M operation was also an option, of course – shows the kind of things Japanese firms can do if they apply techniques from their successful product lines to the computer industry.

But there are no signs of a Japanese system doing everything the Sirius 1 can do at a third the price. The technology is there, but the systems knowhow does not seem to be.

A flood of Japanese systems? In a way, since micros are on the way which will compete with the US leaders.

But knocking out the Apples and Tandys?

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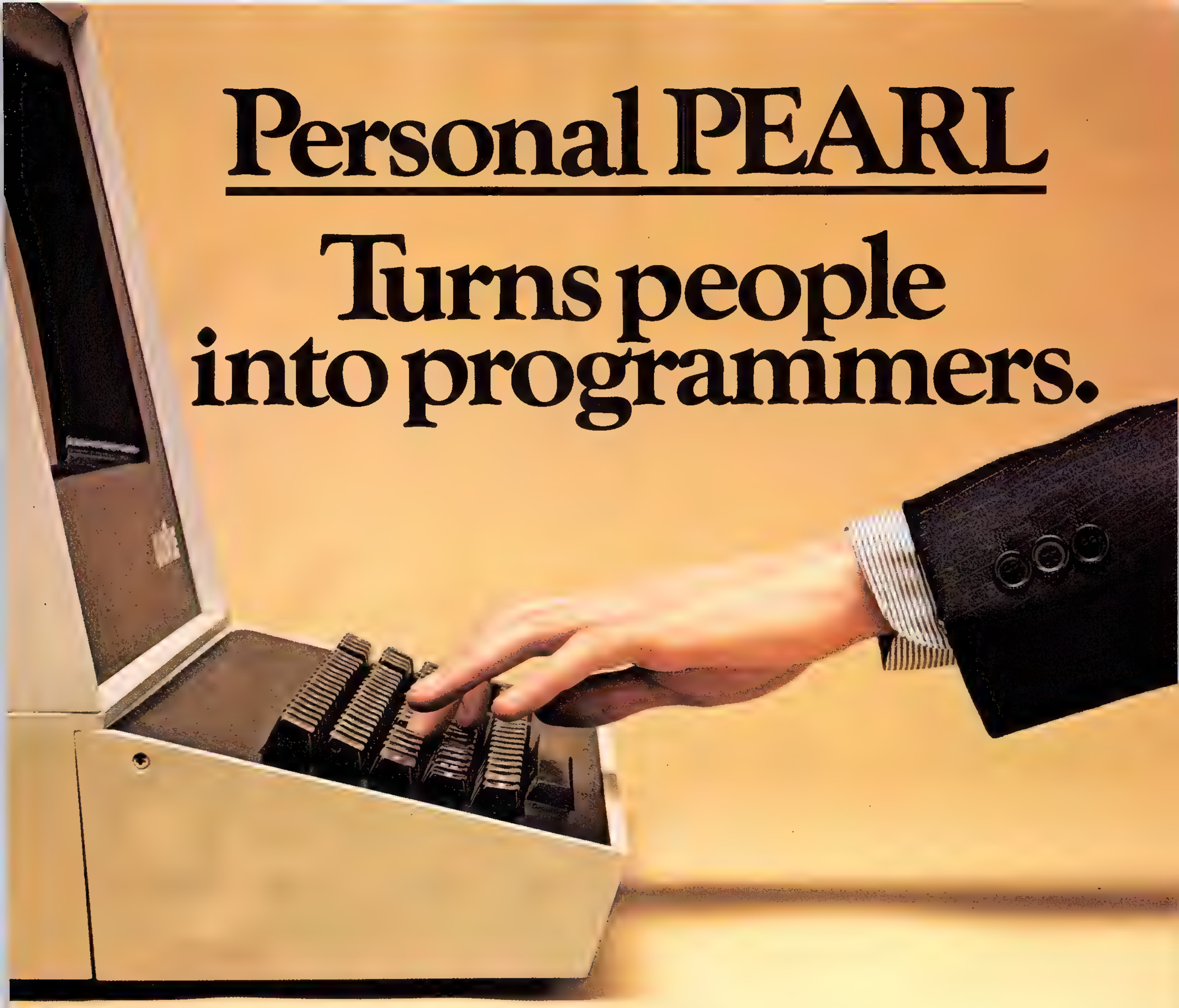

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American success stories

From Washington DC to Los Angeles it is the same story. And it is a very simple story – microcomputers in the US are selling, selling, selling. Unemployment and high interest rates are hitting the US hard but 'Reaganomics' and 'recession' are not words you hear too much about in the US micro market.

The manager of a computer sales depot, not far from the White House, joked that, as far as micros were concerned, he was 'thinking of starting a waiting list of people waiting to be put on the waiting list.'

With the new IBM Personal Computer, competition and sales now add up to 'The Great American Micro Boom'. And dealers do not seem particularly concerned about the predicted Japanese micro invasion.

Computers such as the Apple, which we in the UK call micros, are constantly referred to in the US as 'personals' or more commonly, 'personal computers'.

CompuPlus is the leading specialist company in professional and personal microcomputer sales and one of the largest micro sales outlets in America. Formerly known as Computerworld, it now offers complete systems and designs for professional people as well as servicing, leasing and running classes in hardware and software know-how. It is located in Van Nuys, Southern California and deals in all leading micros – the Alpha, Apple, Atari, Texas Instruments, Hewlett-Packard. Its software range includes products from Digital Research, Microsoft and VisiCorp. Jordan Ayan, the director of public relations for CompuPlus, said: 'Sales of micros are tremendous and it's a race to keep up with it all.

'Right now, there's one product that's taken the market by storm and that's the Apple II. No other system has captured buyers like the Apple and for one reason – there's more software available for it than there is for any other product. And I'm including VisiCalc which, remember, was originally written for the Apple II. VisiCalc is a tremendous program and we sell it like hot cakes. Half the time we can't keep enough of it in stock.' The IBM Personal Computer he says is still behind in the race. 'Well, IBM is big and it's going to pick up sales because of that. The IBM is very friendly and very pretty and it's IBM. But, you know, Apple is very well established and probably has a three year jump on IBM.

'Apple was very good in helping the small software manufacturers and it has developed such a foothold that IBM won't oust it. As far as I'm concerned, Apple is the IBM of the micro world.' Ayan remains cool about the coming Japanese inroads into the micro market. 'It's not an invasion ... yet. The NEC (Nippon Electric Corporation) has put out a very nice machine and we're selling it. It's a CP/M-based* micro with a lot of CP/M-based programs.'

Generally, says Ayan, sales statistics are rising fast. 'We are constantly increasing our order books and enlarging business because micro sales are just snowballing. For instance, last Christmas we got through several hundred Apples a week.

'On that Christmas weekend we just piled the micros right up the walls. People would buy, the pile went down, and the next day – it was up the walls again.

'Also software sales, especially for business programs, are booming. VisiCalc is the seller – we can't sell enough of it – it's a very powerful and popular program, and so are the word processing programs. You see, there are three main reasons why people buy – database*, calculation programs and word processing.

ROBIN MACFARLAN

US dealers prepare to defend their hold on the

microcomputer market against the Japanese

Snowballing micro sales and falling prices are making life exciting for the retailers in the US.

Alastair Segerdal reports on the trends emerging from the unprecedented boom on the other side of the Atlantic

'I find that 85% of the people who buy from us get some sort of word processing because anyone can turn out perfect letters when they use a word processor. Also, the dot matrix printers are good sellers.'

Computerland of Pasadena – it does database management, word processors, education in micros and classes in programming – tells the same story: 'Personal computers are enjoying an unprecedented boom and there's no sign of it falling off.'

It is generally accepted in the US that the software innovations of the past two years have contributed to making micros cost-efficient and friendly enough for the non-technical. Businessmen and women can make good use of today's micro without being computer buffs. Software such as VisiCalc has helped a great deal in allowing the small business to analyse and forecast its finances with complete ease. Today's micro lets the small business have the sort of facilities previously only enjoyed by the big companies using mainframes. A recent survey by Focus Research Systems shows that 25% of business men and women in the US are keen to take on a micro and that this interest is due, in no small part, to the VisiCalc software now available for non-technical people.

The success of VisiCalc since October 1979 has forced other software firms to produce easy-to-use software for the business user. For example, SuperCalc from the Sorcim Corporation of Santa Clara, California; Target from Advanced Management Strategies of Atlanta, and MicroDSS/Finance from Ferox Microsystems in Arlington, Virginia. All these systems offer excellent financial 'modelling' to the small business micro user. And more and more programs are becoming available for the more specialised professional users such as dental surgeons.

One of the best-selling programs for the small business is from Software Publishing in California and called Personal Filing System (PFS). Structured Systems Group of California offers the NAD System (name and address system). New index card programs are offered by VisiCorp (VisiDex program) and by Information Unlimited Software, of Berkeley, California (Datadex program).

The American Management Association said: 'It's not just the small business and home user that are pushing up personal (micro) computer sales. Many administrators and executives in large business concerns are having one on their desk to perform local tasks in their own sub-office instead of tapping in to their company's larger computer, which they had to do a year or so ago. Having your own micro is good for morale – makes you feel more than just a cog in that great big wheel.'

Apple's success and now IBM's entry into the micro market, are big factors in the growth of street corner computer shops and increasing mail order houses. Mail order firms, without the large overheads of a store, can, and do, cut costs considerably, both in hardware and software items.

Computer student Lee Levine of Glendale, California, said: 'Buying mail order can save you as much as 50% on some items such as business software packages and printers. Cut-price mail order software is OK, but unless you know exactly what you're buying, and know it will really fulfil your needs, you could end up purchasing a lot of white elephants at 50% off. And with no local backup for your hardware postal buys, you could have problems.'

More and more micros are now sold through big US discount shops and these have the advantage of selling you a micro locally at less than normal retail cost. They are not as cheap as the mail order houses but are probably a safer bet.

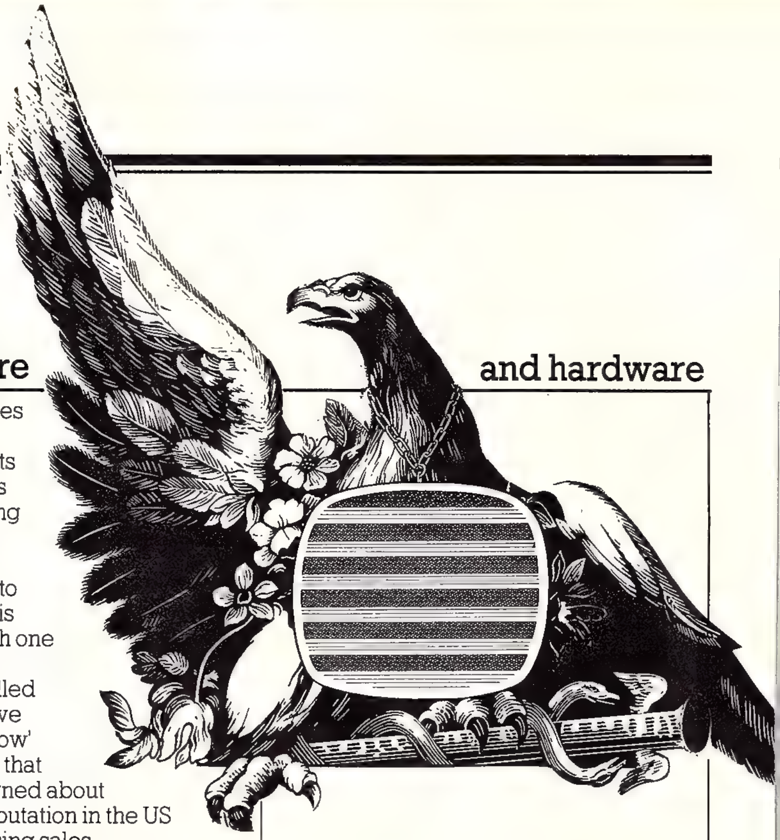
Joseph Tilko, director of the Small Business Administration in Washington DC told me: 'Those micros are just selling like a house on fire' but he did feel that sooner or later the US micro market would begin to feel the challenge of the new Japanese micro enterprises.

'Japanese companies like Canon may produce a micro that could be as ▶

***CP/M:** an operating system (which controls where data is stored, how it is displayed, and so on) that makes different brands of micro look the same to the programs used on them.

***Database:** a system which can draw upon a single bank of information to use it in different ways.

Development seesaws between software and hardware



▶ successful as Canon's camera range. And don't underestimate the Japanese knack of producing very small and very portable items, because small, hand held micros could be the next phase of the computer revolution.'

And it is the philosophy of the Japanese Seiki Group to open *new* markets, not go for a share of existing markets. Seiki is the world's largest manufacturer of watches and probably the first non-computer firm in Japan to moves into computers.

The group has over 1,000 dealers in the US selling its little, low-priced microcomputer printers. Coming on the market this spring will be Seiki's Epson QC-20 computer, aimed at the small businessman and costing about £2,000.

Seiki is also pushing ahead with its HC-20 handheld micro which is geared to small business needs. This hand-held 3.5 lb computer is not just a super-calculator but a real micro, with a standard typewriter keyboard that can do word processing.

An interesting side-issue is that in March this year, Apple began retaining attorneys in various East Asian cities as a starting step in legal moves to sue certain companies for imitation.

Apple suspects these companies are manufacturing an exact replica of its Apple II. Apple declined to give details of this situation although one of the replicas is alleged to be called Apollo and to have the Apple 'rainbow' logo! Apple says that it is more concerned about protecting its reputation in the US and Asia than losing sales.

Julian Bermudez, managing director of JNL Associates Incorporated, Springfield, Virginia, said: 'Yes – we're looking at a micro boom because the micro is coming within the reach of more and more people.

'It's a new market fad and at some points the market gets saturated with hardware. 'Then you get a lapse when the software people are busy marketing and the software outgrows the equipment.

'So you have to manufacture new equipment to keep up with the software developments and this is how it goes – see-sawing back and forth but with those market trends always rising – never falling.

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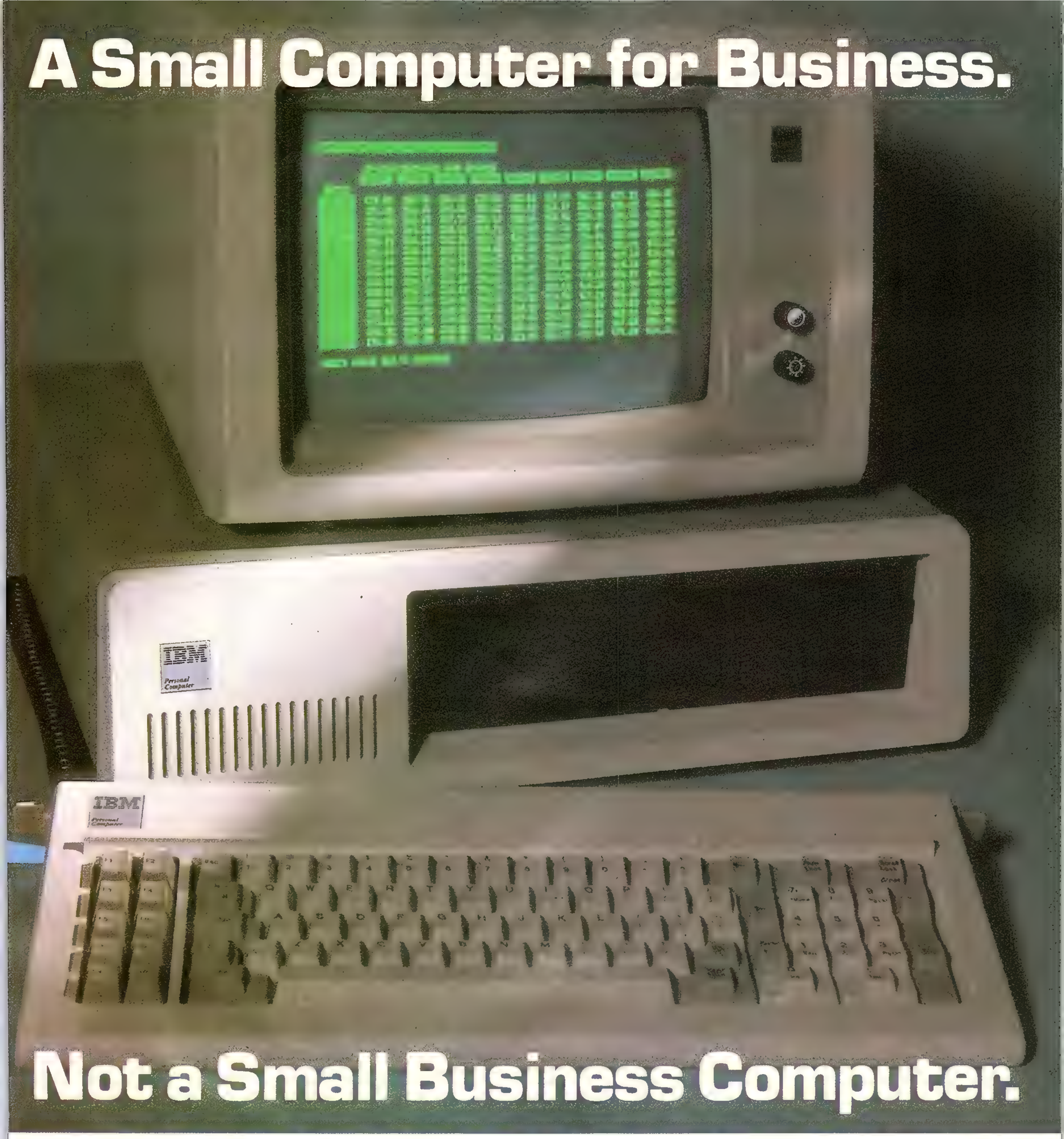
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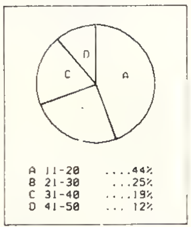

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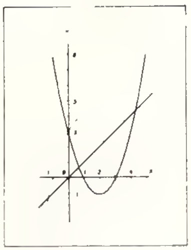

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Finger on the micro's pulse

Guy Kewney went to the West Coast Faire in San Francisco to find out what the latest batch of micros is offering

There is a sudden rush of manufacturers getting into the business of supplying sophisticated displays for micros

It has always been hard to explain, in advance, what you will be doing with a computer. The problem is, perhaps, that a computer is theoretically capable of doing any administrative task that its owners are doing – if only they can work out how they do it.

Each year, it is well worth making at least two journeys over to the US, to get some inspiration which can help answer the question 'what is the micro going to be used for ?' If the trip does nothing else, it will at least remind you that the question is not as facile as it sounds, and the answer not as obvious as you may have thought.

For example, well over half the people I know who have bought micros informed me (before buying the thing) that it would 'help with the home accounts, and possibly control the central heating'.

After four years of going to California for the San Francisco West Coast Computer Faire, I have yet to see anybody selling a successful system for doing either. In the first place, home accounts are significantly complicated by the chore of having to type all the information into a computer. And their complexity is not sufficiently arduous to justify the automatic processing benefits – you can, in fact, usually work it all out on the back of an envelope.

Business applications are not significantly better predicted. If I had a pound for every prospective small business user who told me that the machine 'will be used for payroll' I could pay their salary bills. Those who predict that they will 'handle all the accounts' have, without many exceptions, found that what they really end up doing is preparing invoices, which is not the same thing at all.

This year, at the West Coast Faire, I expected to be impressed by the number of products in a new classification – 'database managers'. In this I wasn't disappointed: there were more glorified data filing systems than even good land could support.

The quality, however, was a little less enthralling.

Trying to explain what a database manager program is can be a very wearying exercise in contradiction. Not only do the experts never fail to disagree on what the 'ideal' manager should do, they also reliably tear each other's products to shreds on the grounds that they don't do it (whatever it is) properly.

Yet the problem is very simple. Most programs which people write involve storing information in the form of data – data being codes, representing printed characters. And subsequent programs involve trying to find the right sections of information in that data.

The reason people want a database manager is that it is built around a pretty comprehensive collection of program routines – all designed to store information as data on disks, and to dig out the information later.

In other words, the right database software could do all the things you might ever want to write a program of your own to do.

This is not the place to try writing a helpful assessment of which particular branded database product is most likely to help anybody do their own specific task. Even using one particular product, there could be a hundred and one ways of getting a certain job done – and which of those ways you would use, and which method you would choose on the alternative product, and how they could be compared, is impossible to say. It would be like comparing the game of chess with the Islamic religion, judged by the amount which the average Sunday School student knows about either.

The significant point about these ▶

Business executives tend to have the micro on their own desk, not on the secretary's

▶systems, however, is the realisation that there is frequently a serious problem in getting the information into the computer.

I was impressed, for instance, by the effort which Information Unlimited Software (authors of EasyWriter) had gone to with Easyfiler, on the IBM Personal Computer, to ensure that somebody entering figures from hundreds of invoices could do so fast, without having to move their hand from the numeric keypad.

Unlike traditional database programs, a lot of the new ones have made considerable efforts to ensure that users can change their minds about what information they want to store.

Where originally programming languages made it very difficult to display a screen with gaps in it and have the user enter data directly into the gaps, most of these databases have a data capture phase which not only does this, and checks the information somewhat, but also allows you to add new spaces to the input form.

It isn't clear to me, however, that most of these designers have grasped a simple but very important trend in the use of personal microcomputers – that is, that they aren't secretarial machines.

In other words, where a computer sold 10 years ago would automatically have the services of a whole room full of key-punch operators, tediously, rapidly and unremittingly reading figures off sheets of paper into the machine, a machine sold today tends to have just one user – the business executive.

The executives tend to have the machine on their own desk, not on a secretary's. And executives tend not to want to spend a couple of hours each day, just entering page after page of routine data – but equally, they tend not to want to give the machine to an assistant to monopolise it, hour after hour.

So how does the data get inside the machine?

One database in particular, a nearly-ready product called Sequitur, may have the answer – by using the machine as a word processor.

Sequitur will be released in a month or so by Community Memory, a Berkeley co-operative, with two unusual features. First, the designers don't think any old eight-bit CP/M system can run a proper database – and the Sequitur system is designed to run on a big, 16-bit minicomputer or microcomputer – from IBM or Sirius size and up.

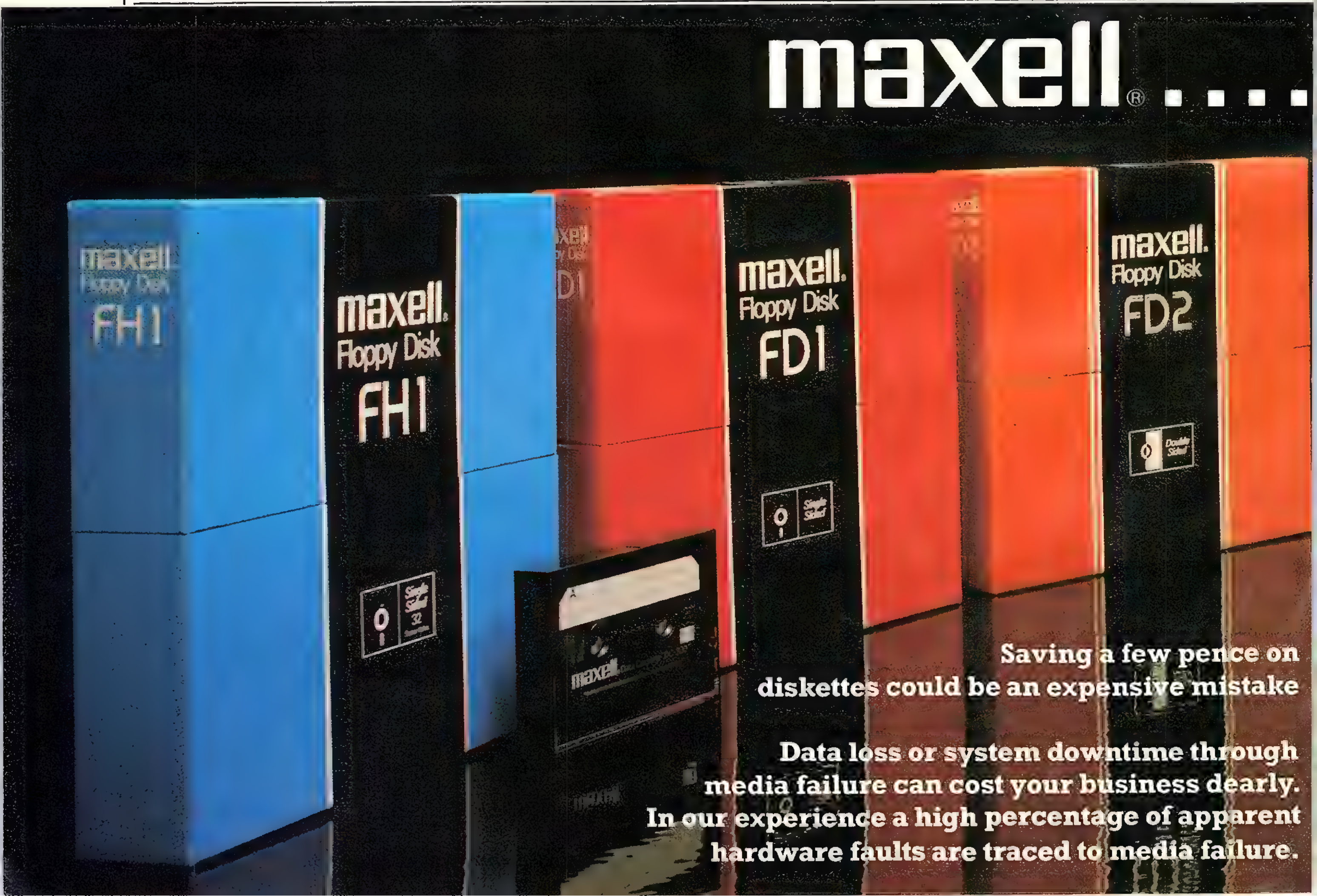
Second, it looks mainly like a word processor, which has a very big memory, and monotonously watches what goes in.

In other words, should you write a letter to a firm, the name and address of the firm, the name of the executive, the date of the letter, and the subjects covered, can all go into the database with a minimum of extra effort.

Friends Computing, with its Access 80, has tried to build a system which allows you to read Wordstar files into the database, which is another way of recognising the same problem.

Eventually, of course, this trend depends on the arrival of machinery that can read. When a user can feed a catalogue page into the Xerox hopper of the computer, and then see it on the screen for marking so that selected bits are stored, then database management will start to be rewarding – because the information will be in the machine when you want to get it out.

The other interesting trend, coming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It became apparent that colour monitors would be available for about £100 by 1983

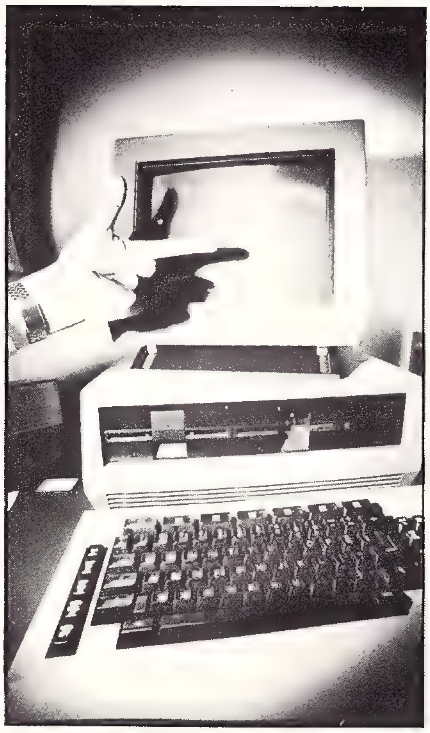
just at the right time, is the sudden rush of manufacturers getting into the business of supplying sophisticated displays for micros, and cheap data storage.

The power of a colour display cannot be overstated when you are trying to analyse data into information – and the price of a colour monitor to allow colour displays is coming down as if it were silicon.

At the Faire, it became apparent that colour monitors were going to be available, readily, for well under $200, before the end of 1982. In the UK, the same trend is apparent – acceptable quality screens will be available for under £100 this year.

Data storage, however, is coming down even faster. At the moment, people will happily sell you a disk storage unit capable of holding five million character codes (bytes) which is quite a bit of text. Typically, the extra cost of plugging these 'hard' disks into your system is £3,000.

At the West Coast Faire, Davong Systems, an ordinary hardware supplier, not a specialist new technology company, was offering a five megabyte hard disk for the IBM Personal Computer, ready to plug in and run, for $2,000 – that is, little over £1,000. Davong conceded that the same device could be built to hold 10 million characters for little more cost.



Sequitur database will run on the Sirius

Builders of hard disk systems, seeing the rush for storage that all these new databases are generating, expect actually to create a market by pricing their products very low. It is probably true that prices today are unrealistically low – but the trend shows clearly that in as little as six months, the size of the market will have grown so fast, in response, that the price will actually be very profitable to the hard disk manufacturers.

At the same time, high-capacity drives from builders like Micropolis could supply 40 million character stores, and even 80 million character stores, in the same five-inch drive space, within a year.

It will end up, I predict, radically changing what we do with microcomputers. Whether it makes it any easier to explain what we intend to do with machines before we have actually bought them, is quite another question altogether. ☐

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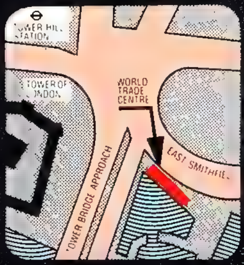

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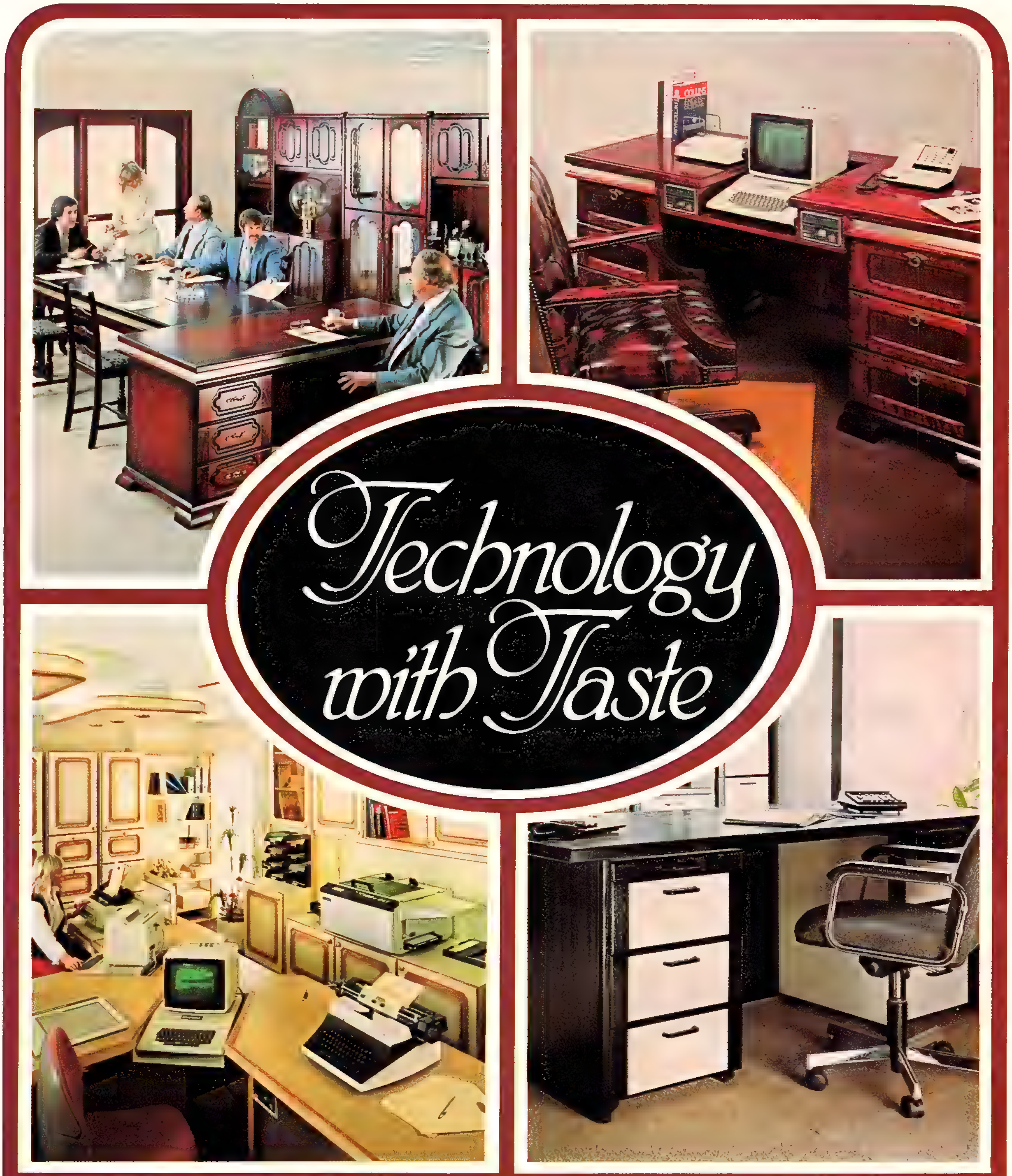

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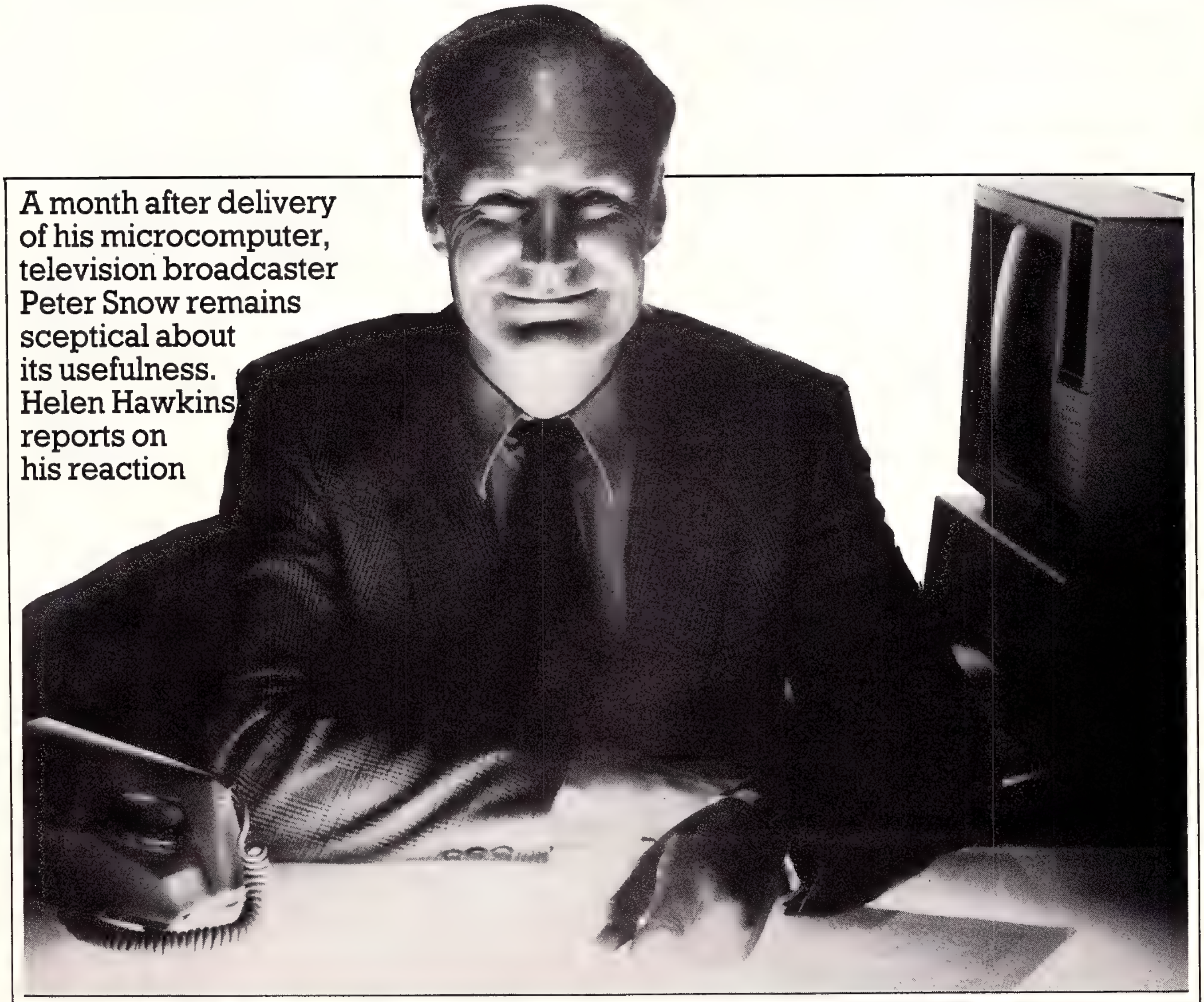

A month after delivery of his microcomputer, television broadcaster Peter Snow remains sceptical about its usefulness. Helen Hawkins reports on his reaction

Why Snow says 'No'

With due modesty, Peter Snow would class himself as 'an averagely intelligent person'. And even an averagely intelligent person working under expert supervision, he believes, couldn't fathom the mysteries of microcomputer lore without devoting at least one whole day's concentrated effort to the project – and probably more.

Snow doesn't have that kind of time to spare. He predicted as much when *MicroDecision* first approached him as a possible trial-user of a micro system (see June *MicroDecision*, Page 43).

At the best of times, his regular 'Newsnight' duties keep him shuttling back and forth between briefings and conferences, newsdesks and studios, until late into the night. And in times of crisis his schedule is as demanding as a Cabinet minister's.

All the more reason, it was felt, to let him try his hand at a micro system. Not only would he help to establish whether a micro was of particular use to a busy TV journalist, but he might also test the micro's general image as an invaluable ally of the overworked.

To be fair to microcomputers, Snow wasn't kindly disposed to them from the start. He described his attitude as ranging from 'sceptical' to 'negative', ranking personal computers as, at best, gadgets to have fun with, provided one had the time.

He confessed he'd be willing to change his opinion if the computer helped him with his 'awful memory', but he wasn't convinced it could do that anyway.

Still, he gave the experiment as much time as he could spare: demonstration session at the suppliers' premises, followed by a three-hour stint at home after the system had been delivered.

No fairy-tale transformation in his attitude has taken place, however. Most of his misgivings have been confirmed, and whereas before the trial-run he described micros as 'junk', now he'd probably use the term 'mumbo-jumbo' instead.

'Fun', in other words, doesn't exactly sum up his personal experience with a micro.

On the one hand the experiment proved demystifying. 'I thought I was going to be given a *computer* – you know, the kind of thing that would tell me what time I was going to get up in six weeks' time,' he explained. 'But it's essentially a luxury typewriter – and one that takes up a whole table in my office at home.'

(Snow's test-system was composed of a terminal, keyboard, visual display unit, printer, floppy disk drives and word processing program).

With a more down-to-earth sense of his system's capabilities, Snow set out to master its basic functions, aiming to use its word processing program to print out a letter.

But here he discovered its more mysterious qualities. 'I was fairly impressed at the demonstration session by what one could get the machine to do, but I still found its operations incredibly complicated,' he confessed. 'I tried to ▶

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Peter Snow found that trying to unravel the mysteries of the manual was maddening

▶ follow what the lady demonstrator was saying, but I could take in only about 10% of it. You *can't* take it all in at once.'

Sitting down with the instruction manual didn't prove any more enlightening. 'For a start, my book didn't seem to match up with the machine properly. The book would say, "Press B", or some such thing, and so I'd press B – but nothing would happen,' he said.

In general he found the instructions 'terribly difficult to understand – mountains of obscure words and symbols, such as "log in" and "log out". If operating the thing is as straightforward as it's made out to be, why all this extraordinary detail and these obscure ways of describing something very simple?' he complained.

But he persevered. After a couple of hours he thought he'd got the instructions 'roughly right' and optimistically pressed the print key. For which he was rewarded with a flashing 'No print' message on the screen.

Further efforts to unravel the mysteries of his manual still brought the same maddening results, and he conceded defeat. The system is still occupying a whole table in his office where his teenage daughter has tried her luck with it from time to time, with, he admits, slightly more success. But neither of them has been able to persuade the system to print out a letter yet.

Snow was more than willing to entertain the idea that his daughter's comparatively greater success with the system may be significant. Her generation may well adapt itself to computer use more readily than his own: 'I'm just not used to reading things on green screens. And that keyboard is incomprehensible to an average typist like myself.'

He can also see micros as workable office tools which could be taken 'very seriously', although they would 'transform TV journalism' at the same time – and he gives the impression that he doesn't consider *all* those potential changes beneficial, especially if they meant loss of jobs.

The benefits of a home computer, with the emphasis on 'home', remain to be proved to him, however. 'If you write a number of books a year, I suppose a system like this one might pay,' he offered. 'And I can see some of its basic advantages: nicely-presented letters, with a record of them and lots of copies. But for the ordinary journalist, it's absurd and irrelevant – out of all proportion to the time and cost involved.

'If I'd actually *bought* the system myself,' he added astutely, 'I might have had a greater incentive to get it working. And I think it could have been done if I'd had access to an instructor for a day.

'But I'd still bet I could type a letter faster than my lady demonstrator, with her "log in, log out" routine. And she'd be paying £6 a letter while I was paying tuppence.'

Snow's testimony may well provoke much head-shaking from micro afficionadoes. He himself felt it was unfair of him to comment on his test-system 'because admittedly the manual has driven me mad'.

But there's the rub, it seems. ☐

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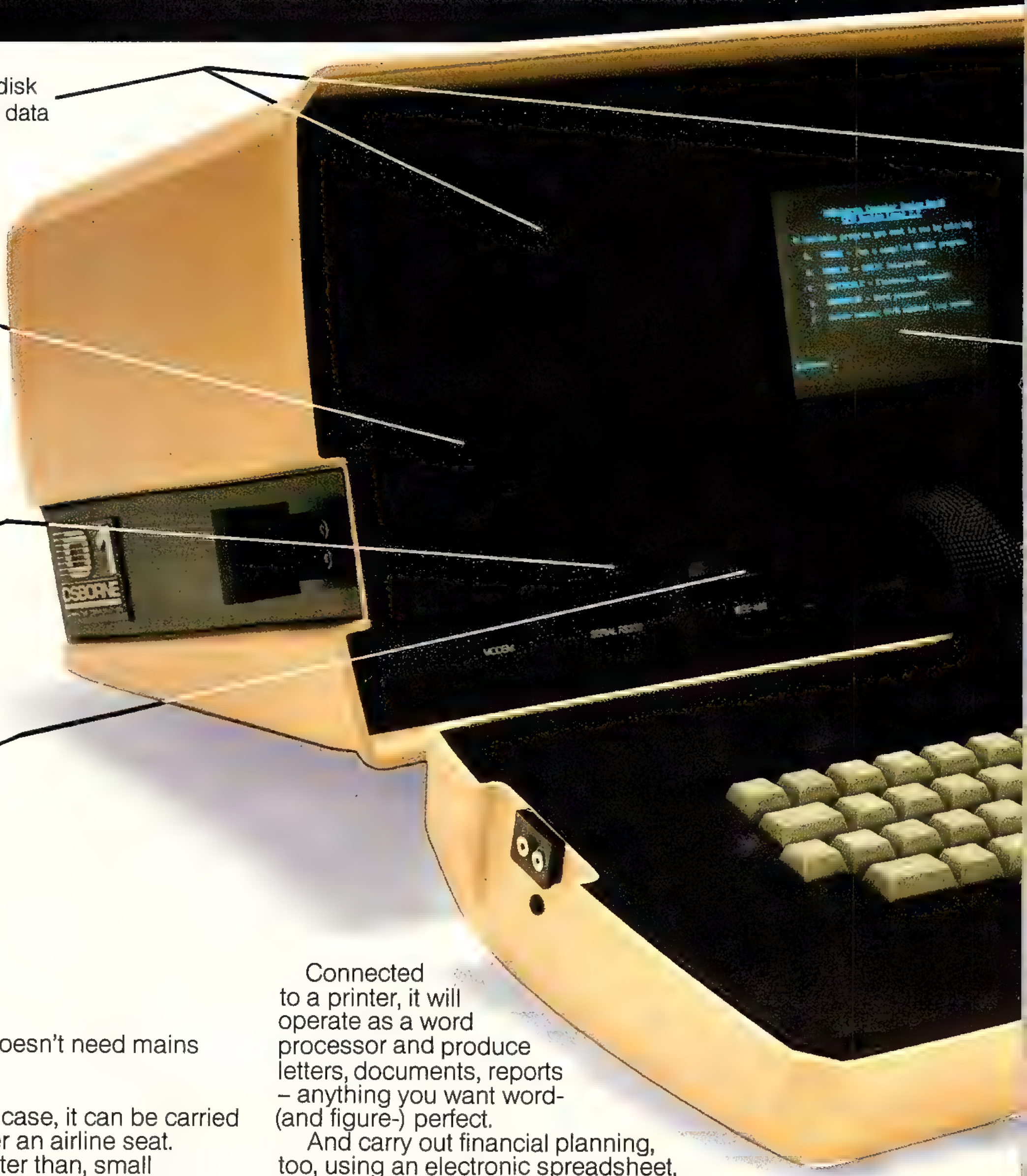

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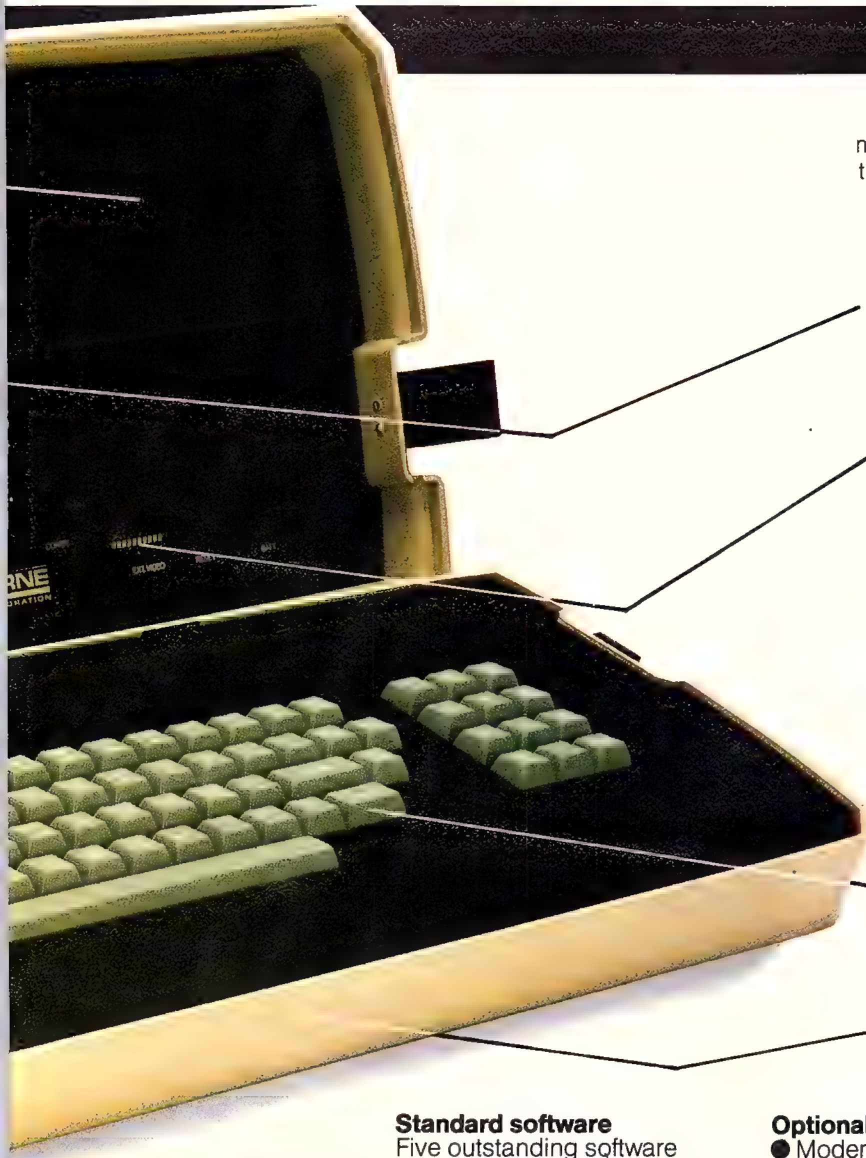

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INSIDE THE BOX

As the operating system is invisible, users are often confused about it. Peter Jackson looks at how one popular system, CP/M, actually works

Computer programs, as we've seen before, are not strictly 'inside the box'. The programs you buy or write to make the computer actually do something are not part of the hardware but just act on the hardware and put it through the right hoops.

But although all computer programs are called 'software', some are more hardware-ish than others. These are the operating systems that govern how the computer hardware works with the programs you want to run in your application.

The confusion between different kinds of software, between 'systems software' and 'applications software' is down to just this.

Applications software is what you buy or write; systems software is what the micro manufacturer chooses to give you to work with.

This all comes from the fact that a microcomputer needs to be running a program all the time it is switched on. Part of the time it runs your application program; the rest of the time it runs the operating system.

And these days, systems software more often than not means CP/M. But first of all, we have to look at operating systems in general.

OK. Operating systems are essential, or else every key you type would do nothing at all.

Despite what you may think, when you hit a key on the keyboard all that happens is that the operating system scans the keyboard, discovers you have hit a key, figures out what key it was, and tells the computer hardware to put that particular character onto the screen. The only contact between keyboard and screen is through the operating system.

Then again, when you want to put information onto disk from the computer's main memory, all you have to do is give the information a filename – any name you like – and tell the computer to save it onto disk. The operating system takes care of where the file goes on disk and how to find it again when needed. All you have to remember is the filename, and the operating system even helps you to do that by keeping a 'directory' of the filenames on each disk.

Basically then, the operating system programs handle the details of input and output, and deal with organisation of storage on disk. By doing this, they provide an 'environment' for the applications programs to work in.

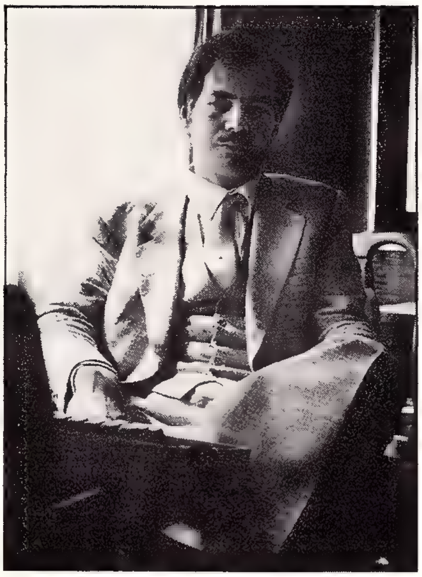
Computers are lumps of junk without the right software. But even the junkiest computer has some software supplied with it that will make it at least respond to what you type at the keyboard, and this software is a primitive operating system.

In these simple systems, the user does not have to do anything tricky like loading the operating system programs into the computer memory; they are there already, stored in that indelible type of memory called read-only (ROM).

If the system programs are in ROM, the computer starts running them as soon as the power to the machine is switched on. The user can then get on with their using without having to worry any more.

A recent cartoon, crude though it is, gives a good picture of what an operating system does. The cartoon shows an octopus, with one tentacle writing information onto disk, one reading information from disk, one checking to see if any key on the keyboard has been pressed, one putting characters onto the screen, and one taking files out of a cabinet to represent applications programs – and all the while the octopus is reading a book about CP/M.

This all seems fair enough. The computer manufacturer provides the operating system, you or the software supplier provide the applications programs, and everything is fine. But the trouble is that microcomputer manufacturers in general do not provide compatible operating systems, and applications programs are written with a particular operating system in mind.


Adam Osborne: Don't use ED. COM.

The fact that applications programs only go with a particular operating system was one of the big bugbears of the microcomputer industry in the early days. All the microcomputers produced had a new operating system and a poor selection of applications programs; the user had very little choice. If he or she wanted a particular program to run the business, only one machine – the one whose operating system handled that program – would do.

And then came CP/M.

This was an operating system that worked on a large number of hardware configurations, and was not restricted to a particular machine. And as a result, applications programs could be written by outside firms to work with CP/M and they would work with any machine capable of running the CP/M operating system programs. But CP/M's origins gave no hint of the giant influence it was to have on the industry.

Back in the early 70s, Intel was a fast-growing memory chip company with a small microprocessor division which was running into difficulties.

The main trouble was that although Intel had the first 'real' microprocessor, the 8008, programming it was a tough job. Microprocessors can only understand instructions in binary code, strings of '1's and '0's, and although you *can* write programs in binary or a slightly easier language called assembler, it is a very tedious job.

So Intel called in a small firm of consultants called Microcomputer Applications Associates, run by the youthful Gary Kildall, to write a 'high-level' language to make the programming job easier. The result was a language called PL/M, Programming Language/Microprocessors, which Intel's engineers could use to develop programs for the 8008.

And Kildall himself, once Intel said it was not interested in the project, wrote an operating system in the new PL/M language.

By analogy with PL/M, he called it Control Program/Microcomputers – abbreviated as CP/M.

One prospective user was Glenn Ewing of Imsai, and between them Kildall and Ewing cooked up the idea of splitting CP/M into two parts.

The main part, the section that handled the floppy disk units and the memory files, stayed as if was; the bits that depended on the particular computer ▶

the 8" Apple

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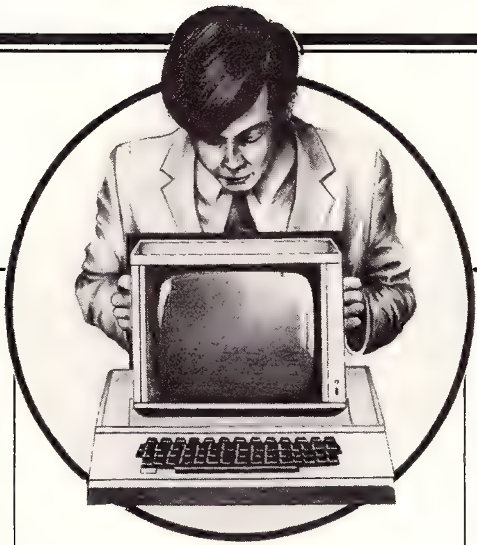


▶ hardware to be used (the particular screen, keyboard, and so on) were separated into a separate section called the BIOS.

Once this was done, all a computer maker had to do was rewrite the BIOS to suit its hardware, and the rest of the CP/M system could be used as it was.

There was just one restriction; since the operating system had been written to write programs for Intel microprocessors, it would only work with Intel's 8080 and 8085 processor chips and with Zilog's Z80 chip, which could use Intel processor instructions without difficulty.

Immediately CP/M began to spread, particularly once Digital Research had changed it again so that it could be used with any combination of disk units, floppy and hard, just by altering special tables written into the program. This version, called Version 2.2, is the one most widely offered today.

Now there are well over 3,000 different hardware configurations running CP/M, and over 200,000 users worldwide – all taking advantage of the standardised operating system to get access to the vast range of applications programs written to work in the CP/M 'environment'.

But what exactly are they using? Basically, they have got an operating system designed for engineers, and designed to be used with 8-inch diameter floppy disks and a teletype terminal (a printer instead of a display screen) using paper tape. In other words, despite some changes and improvements, CP/M is still built around old technology.

According to Kildall this does not matter, since CP/M is so flexible that faster microprocessors and faster and bigger disks just make the program work faster. But CP/M's background has given it some features that make users – non-engineer users at least – tear their hair out.

When you get CP/M for your computer, the manufacturer will have fixed the BIOS section so that it will work on the hardware, and will give you a disk with the operating system programs on it. All you have to do is put the disk into the drive unit, press the reset button, and CP/M is loaded into the computer's main memory.

At first glance this might seem odd, since we have already seen that you need an operating system to get information off disk into main memory, and until you have loaded CP/M you haven't got an operating system.

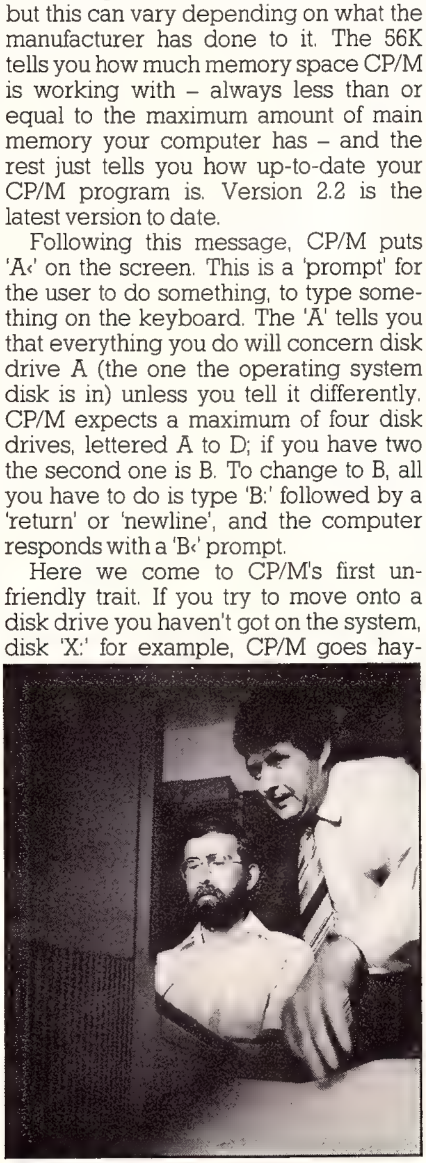
But the computer makers get round this by providing a little program in indelible memory that loads part of CP/M in; this part then loads the next part, and so on until all the system is loaded.

This method is reminiscent of that proverbially useless activity of 'pulling yourself up by your bootstraps', so the process of loading the operating system is often called 'bootstrapping' or simply 'booting' the disk.

Anyway, once CP/M has been loaded in the user gets a message on the screen something like '56K CP/M Version 2.2', but this can vary depending on what the manufacturer has done to it. The 56K tells you how much memory space CP/M is working with – always less than or equal to the maximum amount of main memory your computer has – and the rest just tells you how up-to-date your CP/M program is. Version 2.2 is the latest version to date.

Following this message, CP/M puts 'A‹' on the screen. This is a 'prompt' for the user to do something, to type something on the keyboard. The 'A' tells you that everything you do will concern disk drive A (the one the operating system disk is in) unless you tell it differently. CP/M expects a maximum of four disk drives, lettered A to D; if you have two the second one is B. To change to B, all you have to do is type 'B:' followed by a 'return' or 'newline', and the computer responds with a 'B‹' prompt.

Here we come to CP/M's first unfriendly trait. If you try to move onto a disk drive you haven't got on the system, disk 'X:' for example, CP/M goes haywire and you have to go through the whole loading-in process (bootstrapping) again.



CP/M is not friendly to beginners

Once you have the A‹ prompt, CP/M has five 'resident' commands that you can use. The 'resident' means that they are in the computer's memory, and do not have to be taken off disk.

These are:

- ● DIR, which gives you that directory of disk filenames we mentioned earlier
- ● ERA, which is used to erase files from disk;
- ● REN, which is used to rename files on disk
- ● TYPE, which types out a file on the screen
- ● SAVE, which puts the contents of the computer's main memory into a file on disk.

The use of these is all pretty obvious. But if you type DIR after the 'A‹' prompt while the operating system disk is still in drive A, you will see that there are a lot of files on the disk with odd names like ASM.COM, PIP.COM, and so on.

These show the standard way of naming CP/M files; the part before the full stop is the name, with up to eight characters, and the second part is the type of file it is.

We won't go into the various types of file CP/M allows, since there are a lot of them and if you just want to run CP/M applications programs you won't ever need to know what they are.

But these files on the operating system disk are called operating system utilities, and they are useful little programs to help the user find out what's going on in the system and operate it properly.

Once again, we won't list them all – this time mainly because manufacturers of computers often go beyond the standard CP/M utilities and add their own as well. Some are worth a mention though; and these are SYSGEN.COM, PIP.COM, STAT.COM, and ED.COM.

The SYSGEN utility is used when you want to transfer CP/M onto a blank disk. This is necessary, since you don't want to load CP/M from the operating system disk and then change disks for your applications program to run – especially since changing disks in CP/M is a dodgy business and can make you re-boot yet again if you do it at the wrong time.

So the way round it is to put a copy of CP/M on the applications program disk. To do this, all you have to do is type SYSGEN after the A‹, and follow the instructions that will appear on the screen.

PIP.COM is really pretty similar, except that it does not transfer CP/M but switches files from one disk to another. It does it in a clumsy manner, with commands that are hard to remember – another cause for complaint from ▶

▶ unskilled CP/M users. For instance, you can have a command like: A>PIP B: PROGRAM.COM = A: PROGRAM 1.COM, which takes a file called PROGRAM 1.COM from disk A and copies it onto disk B under the name PROGRAM.COM.

Get it wrong and CP/M will not be very helpful in explaining why it's wrong and what to do next.

One of the most useful utilities is STAT.COM, which simply tells you how much space you have left on each disk you are using. Typing STAT after the A> will produce a message telling you how much space you still have on the disk in drive A; typing STAT B: will tell you how much space there is on the disks in both drive A and drive B.

This is very handy if you are using a program like Wordstar, which gives you dire warnings that if you fill a disk you get a 'FATAL ERROR' that can ruin everything you have so laboriously done.

Finally we come to ED.COM, which is supposed to be used for editing files, changing lines, letters, the order of lines, and so on. We say 'supposed to be used' because ED is not very good for the job – in fact Adam Osborne, designer of the Osborne 1 computer, is on record as telling his users to avoid it completely if possible.

The reason is that ED was the first program Kildall produced for the Intel 8008 processor, and is a *paper-tape* editor that takes no advantage of the fact that everything is done on a screen these days. You would have thought that after 10 years Digital Research would have produced a new editor, but no.

Various other utilities are provided either by Digital Research or the computer maker, and are all more or less useful. The manuals you get with the computer will tell you about them in more detail than we can attempt here.

Finally, let's look at what CP/M does with the computer's memory space. We have already seen that you need to load the operating system into memory, so you lose part of that and cannot use it for your programs. In fact CP/M takes one lump of memory at the top and a smaller lump at the bottom, so that your program has to fit into the space between them. But CP/M is flexible enough for you to make the space for your program bigger if you have more memory than the most usual 64K (that's 65,000+ characters). Using a utility called MOVCPM (Move CP/M) you can spread the top and bottom bits used by the operating system apart to leave more space in the middle.

This is only a brief outline, but shows something of what CP/M can do – its popularity shows that the ability to run an operating system on so many different computers is a very big selling point indeed. But CP/M's origins mean that it is not friendly to naive users, and you can only hope that the applications program supplier shields you from it as much as possible. And is it too much to ask for Digital Research to produce manuals that ordinary human beings can understand? ☐

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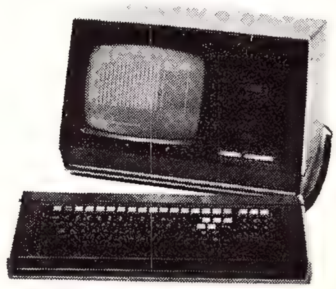

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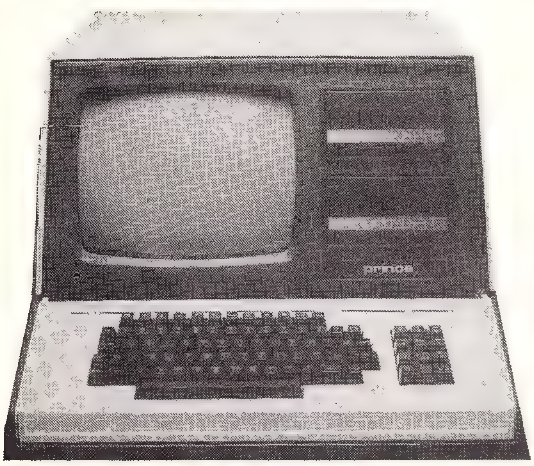

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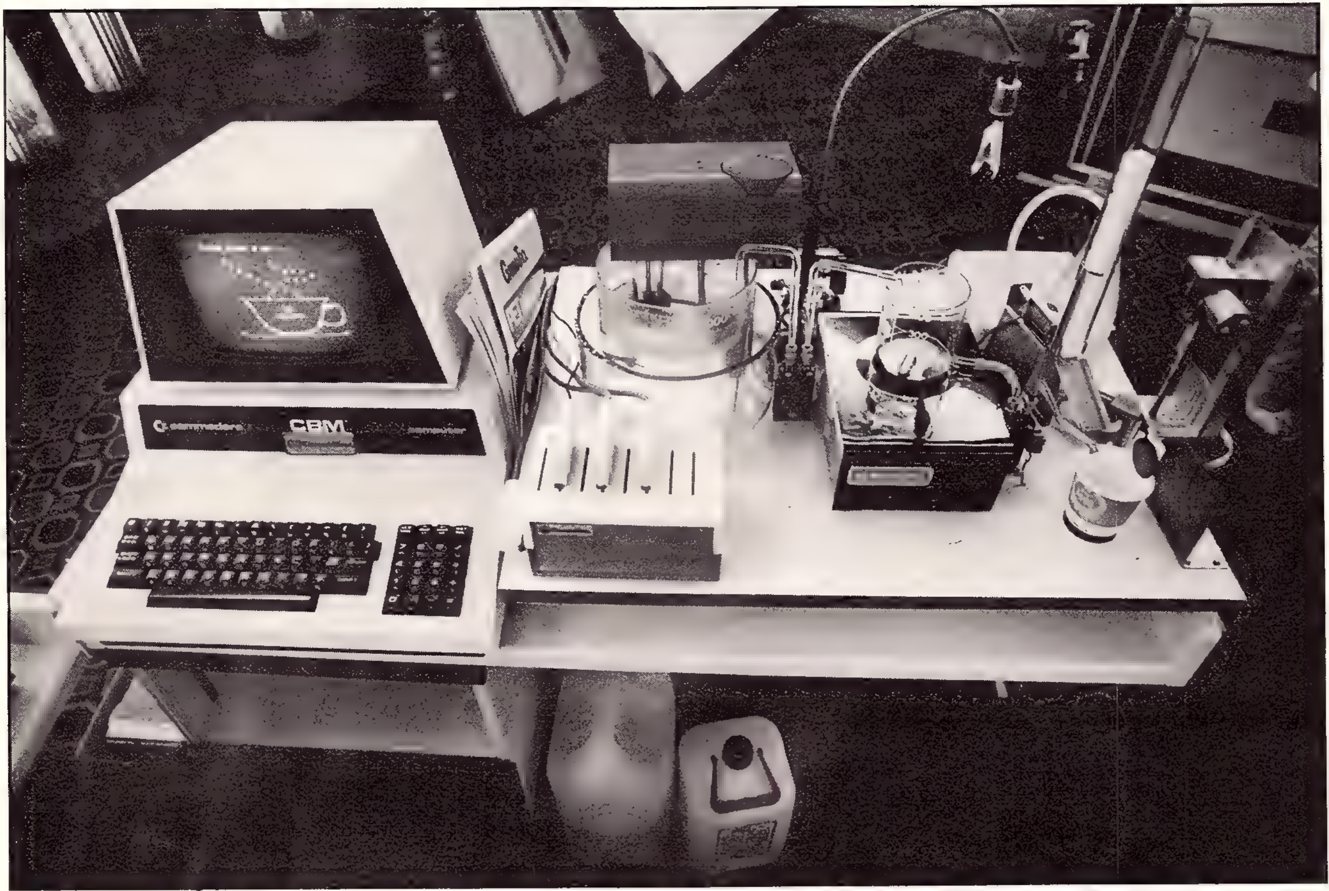
The rich pickings for the micro industry lie in the business sector. Chris Barnard reports on Commodore's response



Once Commodore was primarily geared up to the hobbyist, but now places more emphasis on the serious business user

A hard day for the home hobbyist

Times have changed since those first heady days in June 1977 when the Commodore Personal Electronic Transactor, or Pet, was unveiled at the Consumer Electronics Show in Chicago.

There it was, amid all the Commodore calculators.

Until then, the only personal computers had been assembled from kits by enthusiasts. This was the first time a unit had appeared with its own power supply, an interpretative language (Basic), a video display and a keyboard – allowing non-technical people to program it.

It was, in other words, (so Commodore claims) the first microcomputer.

The public went wild. Many wrote out cheques on the spot for the Pet. *Popular Science* magazine featured the Pet on its front cover.

Demand exploded. Commodore was receiving 40 to 50 *dealer* enquiries a day. It is a sobering thought to think just how short a time ago that was, and just how much has happened since then.

But Commodore has not always been the confident, successful company it is today. The company began as an assembler of hand-held calculators. It was the first company to introduce an electronic calculator for under $100.

In 1975 it came close to disaster, because of the volatile nature of the electronics market. In 1974 it made a small profit only; in 1975 it made a loss of $5 million. One main reason was competition from a major supplier of semiconductors which brought out its own calculator for only $29.

Commodore was unable to match this price.

The Commodore bosses decided that the answer was to buy their own semiconductor manufacturing facility, and in 1974 they bought into MOS Technology, a semiconductor research and manufacturing company. In November 1976 they took the company over completely.

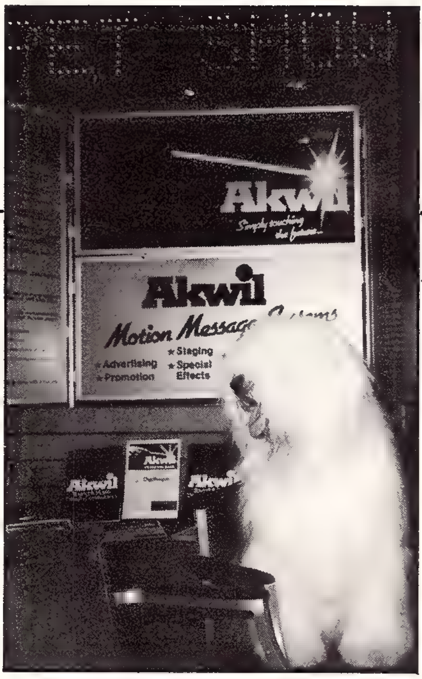
MOS was losing $100,000 a month at the time, but its fortunes changed when Commodore came in.

In 1975 the founders of MOS, some of whom were from the Motorola 6800 microprocessor design group, felt they could improve on the 6800. The result was the 6500 series of microprocessors. The 6502 central processing unit 'computer on a chip' was created, which was to be the brain of the Pet.

At that time only engineering circles were excited by this. In early 1976 the 'microcomputer industry' was only a small number of engineering-orientated hobbyists assembling computers from kits. Commodore's computer on a board, KIM-1 was developed, which became the 'father unit' of the Pet.

Since then the micro market, in the words of many commentators, 'has grown up'. Second and third generation computers have appeared. Commodore became the brand-leader in the industry, a status which it retains to this day. Its profits are up and financially it is secure.

But that position could become more and more shaky. The Pet is getting ▶



No room for sentimentality in business

▶ long in the tooth. Other Commodore machines have appeared, others are on the way; it remains to be seen if these will be enough to cope with competition from some very illustrious corners indeed.

IBM, of course, will put undeniable clout behind its new Personal Computer. Already, the Sirius from ACT has attracted much attention and favourable comment. Many other 'big boys' such as Olivetti and Xerox have launched their machines.

The market has expanded and diversified. At the lowest end, Clive Sinclair has made a quick killing with his ZX80 which, however unreliable a machine, has stitched up the domestic games market.

At the other end, powerful 16-bit machines like the Sirius are going for the serious business market.

Commodore's response to this threat, at first glance, seems impressive. To tackle Sinclair and Atari, among others, it is launching the Vic 10, known in the trade as the Ultimax up to now.

This machine will sell for under £100 and will include facilities such as plug-in Basic cartridges, music synthesis and graphics. It should be an impressive machine. The only thing is, has it come too late?

To fit into the top end of the domestic market comes the Vic 64. It will have 64Kbytes of memory, and will sell at about £400.

The big interest from the business user's point of view will be the 500 and 700 business machine series. Memory capacity for these will range from 64 Kbytes (Model 505) to 256Kbytes (Model 520).

But some commentators have speculated that these may not be a match for the true 16-bit machines such as Sirius.

The UK launch of these products was perhaps typical of Commodore's operation. It is now a massive, vertically integrated multi-national company, manufacturing everything from the raw microprocessors up to the finished computers and peripherals.

Of course, it is US-based, but this doesn't seem to pose as many problems as you might expect. Commodore is a very European-orientated company, with about 70% of its sales there. Also, links between the US supremo, Jack Tramiel, and the UK managing director, Bob Gledow, are apparently good. And yet, as one commentator put it, Commodore is the biggest-one-man-band company in the world! It has none of the sophisticated market back-up of say IBM. This leads to all kinds of false starts, false alarms and confusions within the company itself. Only recently, two marketing executives within Commodore flatly contradicted each other, one

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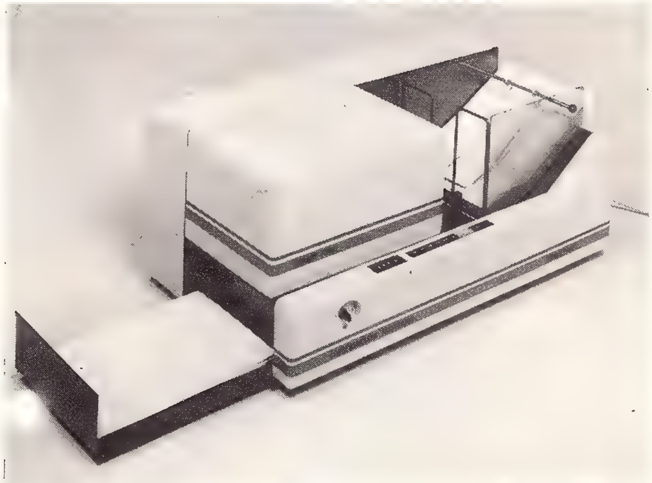

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saying the Vic 64 was a sophisticated domestic computer, the other saying it is a basic business computer.

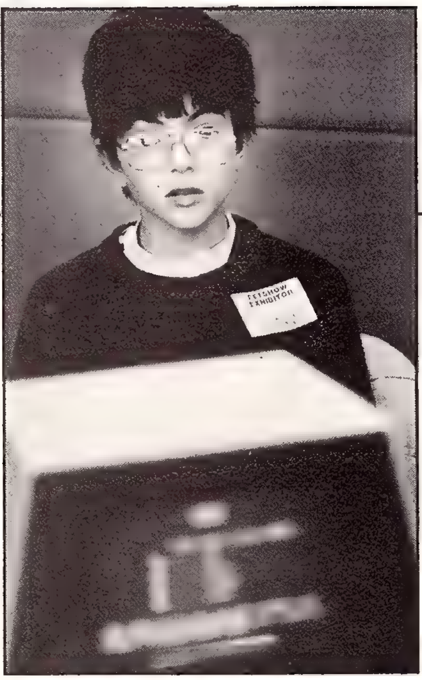
No doubt both statements could be true, but obviously the marketing strategy is confused. A similar confusion arose out of these computers' names. The Vic 10 started off as the Ultimax, but the name has been dropped at the last minute.

Similarly, no one seemed to know when the Vic 40 would appear – and anyway, apparently, it was to be called the Vic 30!

Also, the unreleased top-end business computers had been called, until recently, either Commodore 2 or the 'Porsche Pet' – because the ergonomics were designed by Porsche itself.

However, it seems that the design ideas of Porsche have been dropped – or least Porsche has been dropped – like a hot potato.

The emphasis on leadership from the top remains. This leads to vulnerability in some respects. As one commentator says: 'If Jack Tramiel goes I reckon Commodore will collapse.' On the other hand, Jack Tramiel is a concentration camp survivor. So perhaps he can weather any commercial crisis.



'The Pet Show' becomes more sober

Other emphases are being quietly dropped – not least of which is the name 'Pet' itself. That name was thought of in the very early days, at a time when no-one knew how the market would go. Commodore guessed that the most buyers would be home hobbyists, and so it needed a nice friendly name that would assuage the layman's fears of computers and high technology.

But now the situation is radically different. The rich, long-term pickings lie in the business sector. Hence there is no Pet II, instead, Commodore is choosing more business-like names such as 'series 500' and so on.

Another example of this is the Commodore Show itself. It started three years ago in the Cafe Royal and was affectionately called 'The Pet Show'. This reflected the easy, happy-go-lucky atmosphere that prevailed, many of the visitors being enthusiasts.

It was a small world, and a friendly one. All of a sudden, that world has grown much bigger. This June sees the third show – now called 'The Third International Commodore Show', a far more sober title. The attendance is also likely to double. Many new, more serious business-like faces will be present.

This change is regarded as a shame by the select band of the Commodore followers, who have been with the company since the beginning.

But when business is involved – and big business at that – there's no room for nostalgia or sentimentality. ☐

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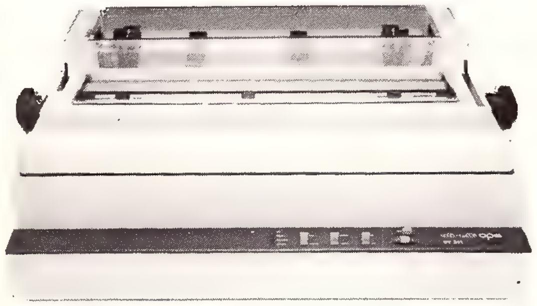

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Is Vic up to business?

'For family, business and educational use!' cries the publicity for the Commodore Vic, one of the cheapest small computers available.

So it's no surprise that when Peter Waugh bought a Vic, he thought it would be the ideal machine on which to learn about computing. One day, he thought, he would know enough and have the confidence to install a computer – whether the Vic or a larger model – in his Hertfordshire car dealing business.

Waugh chose the Vic because some of his friends had followed a similar path with some success in their own business. And there was no reason why he should suppose that the Vic was an unsuitable choice for business.

Many shops specialising in business equipment sell Vics; Commodore itself is planning a range of 'business' software for the machine; and even the packaging pictures a smoothie executive accompanied by the words 'Vic for you business'.

But as Waugh has discovered, the Vic, which is priced at less than £200, does not yet have the necessary network of support to make it a real force as a low-level business machine. If a business is going to use a micro successfully, it needs the reassurance of a good support team.

Waugh didn't have any breakdowns but he did have an extension pack for the Vic produced by Commodore itself which he couldn't work out how to use in conjunction with certain programs.

Naturally he phoned Commodore at Slough, where there is an information service. Waugh was told that he should consult his local dealer.

'They were very unhelpful at Commodore,' recalls Waugh. 'They said that they were unable to speak to private individuals, only to Commodore dealers. I thought this was very poor.'

MicroDecision telephoned Commodore's information service to check this, and was told that they *will* speak to individual users.

Sometimes.

At other times they refer them to dealers. It remains unclear as to what criteria are used to determine who should speak to whom.

Anyway, like many business people using a Vic – whether for business or pleasure – Peter Waugh came up against his next problem very quickly. Consulting the local dealer is not as easy as it sounds.

For, at Waugh's dealer, Alpha Business Systems, a shop in Ware, Hertfordshire, the Vic is being phased out. Alpha sells business equipment including the larger Commodore machine, the Pet, and has found that it can't afford the time needed to sell and support the Vic.

'Also, we are now competing with big stores such as Rumbelows and Currys,' explains Anne Bell of Alpha. 'They can undercut us a great deal, so we don't stand a chance.'

In other words, Alpha can't spend the time treating the Vic in the way it treats more expensive business systems. Waugh did try a couple of other dealers, but didn't meet with very much luck. So he had to sort out the problems himself.

This was all right for him, as he had no intention of using the Vic in his business straight away. Others might be less cautious.

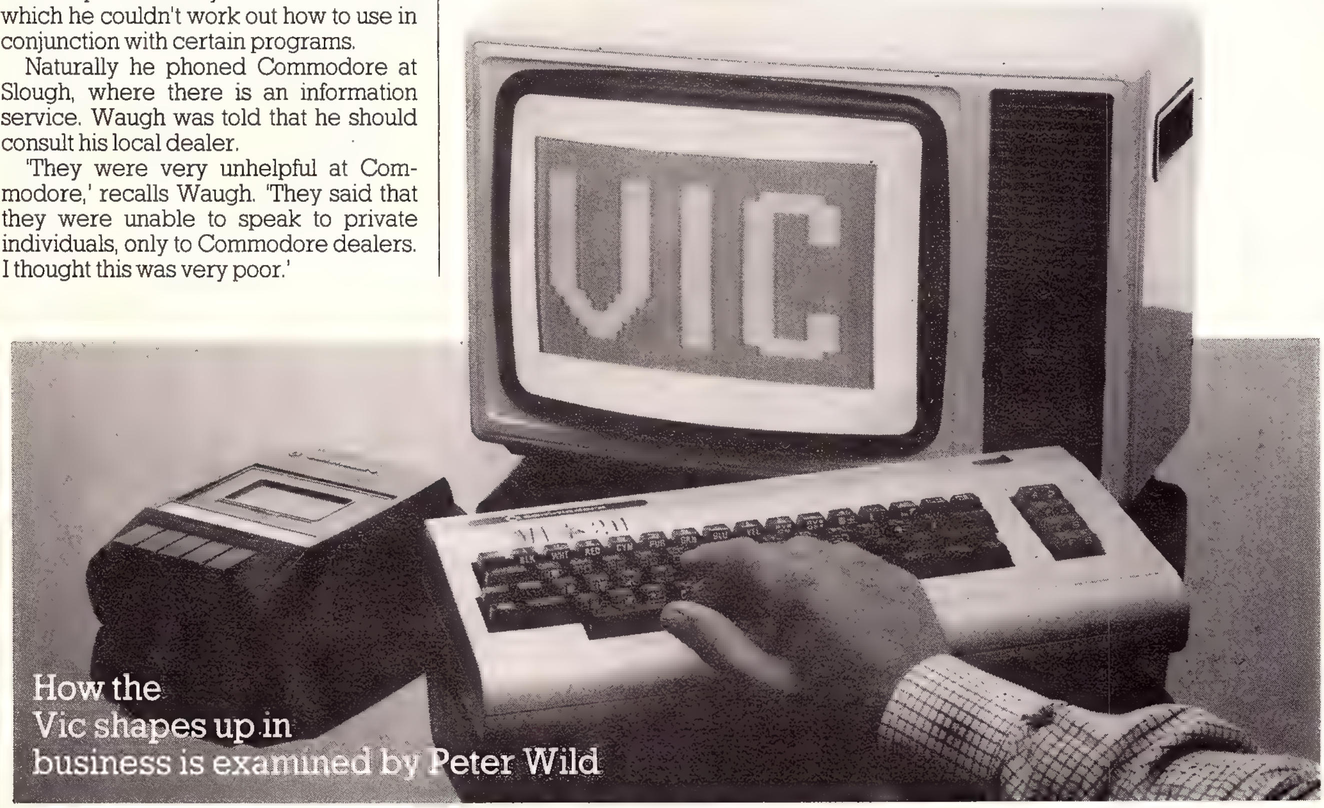
A machine which boasts its business potential so loudly ought really to have the back-up to match. Many business people may buy the machine with every intention of using it immediately in the business, meet the same problems as Waugh and as a consequence get into real trouble.

If the small dealers are too busy sorting out problems on the larger machines, and Commodore itself is often inaccessible, what about the increasing number of large stores who are selling the Vics over the counter? Rumbelows, Boots and Dixons are jumping on the bandwagon, and you can even spot a Vic in that most staid of department stores, Harrods.

'They are no help at all,' says Waugh.

In fact, Waugh's experience typifies the problem that is likely to be facing Vic users over the next few months. An increasing amount will be sold through large retailers, and less and less through specialist dealers, leading to an inevitable decline in the level of support.

Waugh was also concerned at the lack of information available about the Vic from independent sources. The problem here is that it is still a relatively young computer and the documentation that is available has been put together fairly quickly. ▶



How the Vic shapes up in business is examined by Peter Wild

Vic keyboard and cassette player used with domestic TV. Lack of maintenance support may discourage business buyers

▶ Already a magazine called *Vic Computing* has emerged carrying details of all the latest developments and add-ons for the machine, as well as programs sent in by readers.

However, Waugh is none too impressed by the magazine. 'All the magazines assume too much knowledge,' he says. 'There doesn't seem to be anything for the complete beginner. It's all for the enthusiast.'

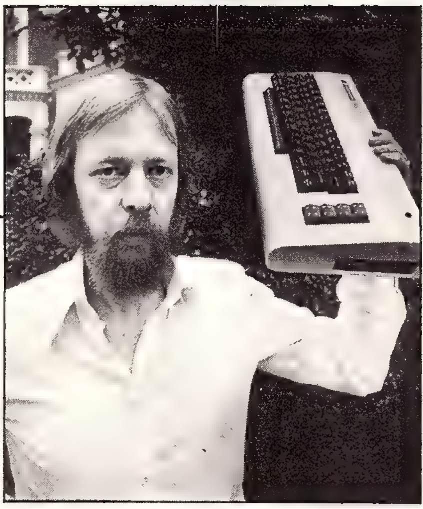
Waugh also had a look at some books which have come out since the appearance of the machine. One of them, *Vic Revealed*, is written by the publisher of the weekly enthusiasts' mag *Popular Computing Weekly*, Nick Hampshire.

'I can't get through that one at all,' Waugh says.

Waugh also claims he has found a lot of errors in other books he has read on the Vic. This is something which is not confined to independent books either. The Vic manual itself has one or two irritating mistakes which may hold up the newcomer quite considerably.

Despite all these problems, Waugh is persisting and says that he knows he will be using a computer in his business eventually.

'The only thing I would like is some more help with serious programs,' he says.



A good way to learn Basic programming

The experience may in fact be helping Waugh to make a success of computing in the long run. He has already seen a number of his colleagues waste an awful lot of money by investing in the wrong system.

Waugh at least will have gained a clearer picture of the problems associated with buying a micro which many business people recognise too late.

'I have seen people in the motor trade spend £8,000 or more on a system *and* still not know exactly what they want to do with it,' he says.

Perhaps one of the greatest difficulties with using the Vic as a business machine will be, paradoxically, its popularity. It is selling very well, and whether or not support will grow at the same rate as the retail outlets remains to be seen.

One company closely involved with the distribution of Vics to major department stores is Vulcan of Hendon. 'Vulcan's role on behalf of Commodore will be to give new outlets a chance to experiment with the Vic 20 and learn how to sell this type of product,' says Robert Stein, Vulcan's managing director.

'Department stores, for example, generally do not experiment with new consumer electronic products and tend to concentrate on tried and tested best-sellers like TV sets and fridges. They also do not usually have enough trained staff who can sell products like home computers. These products are at such an early stage in their development that they have to be "sold" and demonstrated properly, so Vulcan will be responsible for training stores' sales staff,' says Stein.

But selling is one thing, after-sales support quite another. What will happen when business and home users begin flooding back to the department stores with minor technical problems and difficulties with programs?

Stein is convinced that the Vic does have considerable potential for use in business. 'I'm not at the forefront but I have discovered this on my visits to retail outlets,' he explains.

'Some businessmen who use it will work in a company which has a mainframe, but which is perpetually in use. They might want something like a ▶

A £200 system has its limitations

When the Vic 20 was introduced in the middle of last year it joined the Atari 400 and 800, Acorn Atom and Sinclair ZX81 as one of the cheapest computers available. Costing less than £200, it had the advantages of colour graphics and available disk drives. At the time it was probably about the best value on the market, but its supremacy is already being challenged by newcomers like the BBC micro and the astonishingly low-priced Sinclair ZX Spectrum.

But as it becomes available through a number of large stores a lot of people will still go for the Vic. You certainly can't fault the efficiency of Commodore's marketing. It is bringing out a number of programs for business use, and recently announced an up-graded version of the Vic 20 called the Vic 30.

When you buy a Vic 20 you get a very compact, light and portable computer, which you can plug directly into your home TV. The keyboard, however, is very usable, being about the same size as a normal typewriter keyboard.

Some low-price computers have touch-sensitive keyboards which are somewhat impractical for continuous use. At least you know when you have pushed a key with the Vic.

It is very easy to set up the computer and if you have a cassette deck you really can be storing information and programs within minutes. However, it will be a while longer before you are handling serious programs with speed and ease.

Commodore provides a manual, which although it has limitations, is as good as any you will get with a personal computer. It assumes no prior technical knowledge, but is set out in such a way that you can move quickly ahead if you already know a bit about programming.

One irritating aspect of the manual is the extent to which it stresses the 'friendliness' of the machine. 'You are about to meet a friendly computer!' the introduction exclaims. 'Friendly in price, friendly in size, friendly to use and learn on and experience.'

The first chapter serves as a general introduction and without very much effort you can have the screen ablaze with colour.

The introductory section takes a few minutes to get through and after that you can turn to any chapter that interests you. For example, if you're mainly interested in graphics you can read chapter one, practice for a few minutes, and then turn directly to the section on graphics.

If you become really interested in programming, then you can get a more advanced guide from your Commodore dealer called the *Vic programmer's reference guide*.

However, once you've mastered the basics, any ready-written program should be easy to operate, as long as you recognise the machine's limitations.

It is important to remember that unless you are running the very smallest business, a Commodore Vic or similar-sized machine can only ever be a starting point. For your £200 you will get a computer that is very easy to use, but which has a very limited capacity.

But if a businessman buys a Vic and finds it is no use for his business, he will at least have learned the basics of computing, and won't have wasted a fortune. □

● The standard usable memory of the Vic 20 is 5Kbytes, and a 3Kbytes add-on memory is available. You can have a screen display of 22 columns by 23 rows, and display 16 colours at any one time.

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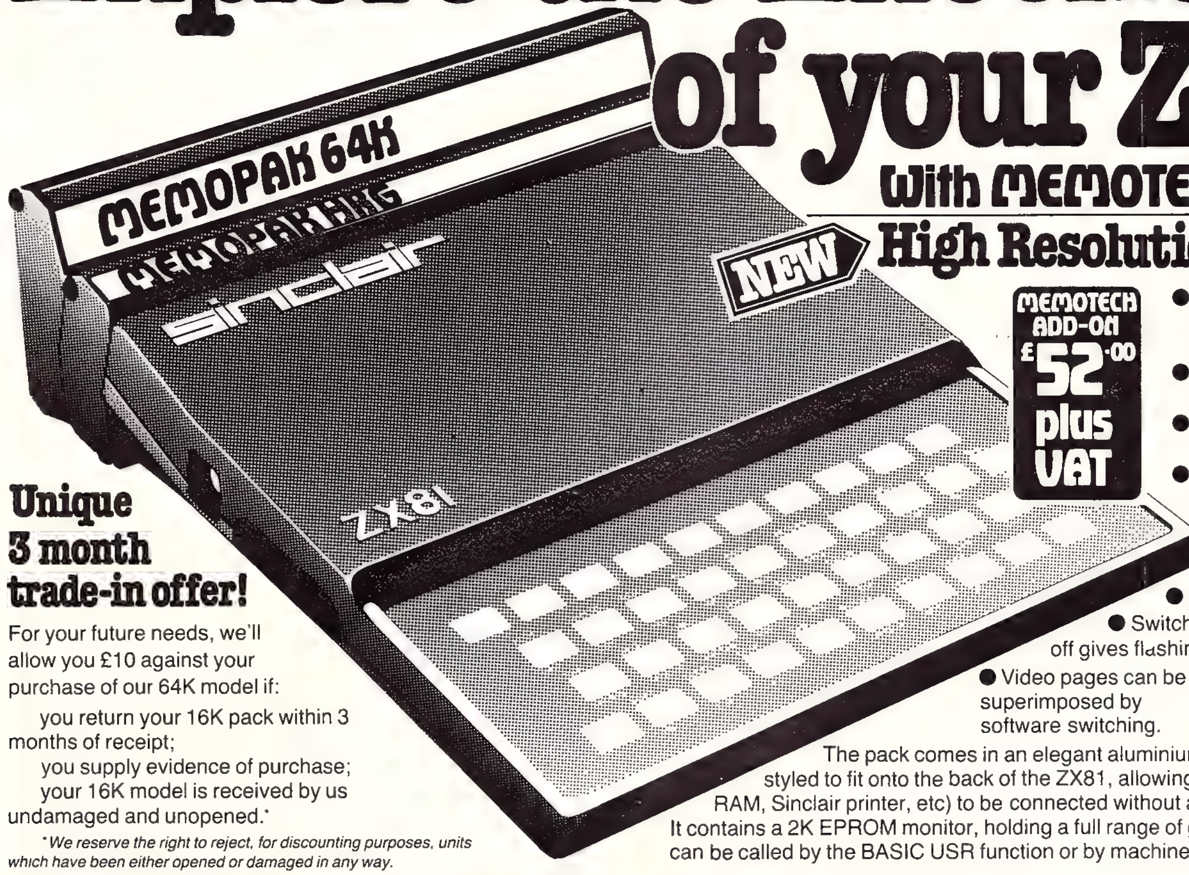

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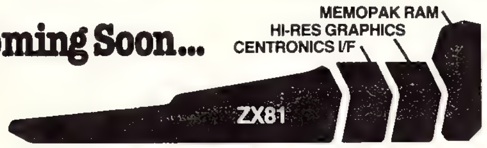

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Programs that are supplied on cassette are only useful in the smallest businesses

▶ Vic for their own personal management work.

'Secondly, there is that kind of businessman who has a very small company, but is very go-ahead. He may not wish to spend thousands on a consultancy, so he could buy a Vic to get himself familiar with computing.'

Stein is also planning a six-hour course on 'getting to know your Vic'. 'This will be useful to businessmen who want to be in the forefront of new technology,' he says. ☐

Programs on the way

The next few months will see a number of new business programs for the Vic, some of which will be published by Commodore itself. Neil Davidson of Commodore outlines some of these, stressing that the crucial element in using the Vic in business is the disk drive.

A disk drive is available for the Vic, which puts it at considerable advantage over some computers of similar power. But so far, not many programs have been written which need the disks, and consequently sales of the drive are quite low.

A new program from Commodore called Simplicalc may change this. Simplicalc is based on the popular VisiCalc financial modelling package which is used on larger systems such as the Apple II. The Vic version will cost £25 on disk and £20 on cassette. The disadvantage of the cassette is that it is much slower and allows a lot less storage.

The Simplicalc program was developed by Mark Turner of the Cronite Group who says he originally wrote it for the Pet.

'But I now feel that the Vic version is a distinct improvement on the original,' he says.

Commodore is also releasing Vicfile which comes on disk only and costs £25. This is a data management system which Davidson claims will be ideal for running a mailing list. However, data management systems rouse a lot of controversy on much larger systems, many critics doubting their efficacy. So a database system for such a small system is bound to raise a few eyebrows.

Associated with this program is a word processing system, Vicwriter which will also be available on disk and cassette. Finally, Davidson is expecting a stock control package to be released in the near future. Presumably that would only be useful in the very smallest of businesses, since it is available on cassette only.

If the back-up for Vic as a business machine may not be as extensive as for some other machines, including Commodore's own Pet, then Davidson is making up for this by putting a lot of thought into the packaging and manuals which accompany the programs.

'We are selling throughout Europe and the US,' explains Davidson, 'so we feel it is well worthwhile investing in the packaging and manual.'

One area of business in which Davidson sees the Vic being used widely is the small hotel. Using Vicfile and the word processing function he claims you could develop an adequate hotel reservation form.

Another program which may be used in a business context comes from Audiogenic and is designed to turn the Vic into a programmable calculator. This is

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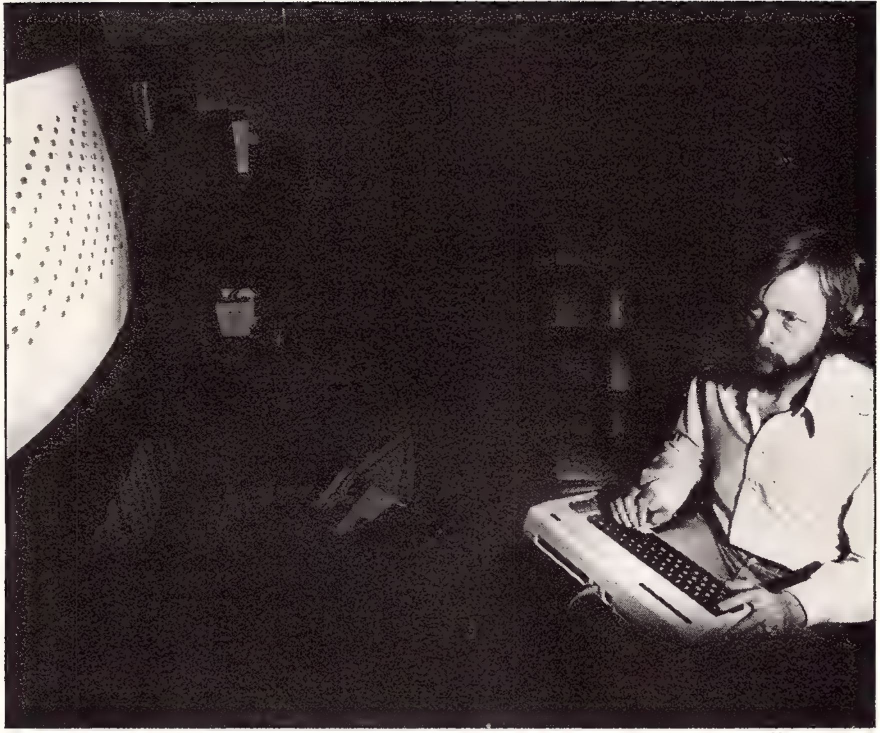

Users with minor problems will not find much help from untrained sales staff

Vicalc and costs only £9. It lets you calculate compound interest, percentages and perform several scientific functions using single key commands.

However, David Smithson of Audiogenic doesn't feel that Vicalc is strictly a business program. 'So far, the Vic as a business machine is a bit of a joke,' he says. 'But I do expect more and more serious programs to appear on the market.'

Sales of Vic are continuing to rise although there is now strong competition from such machines as the BBC micro and the new Sinclair ZX Spectrum. The Spectrum is in fact far more powerful and considerably cheaper.

And while the Vic has peripheral equipment such as disk drives and extra memories readily available, the fact that it does not run the CP/M operating system means it does not have access to the large and growing body of ready-written business software on the market, but is limited to software specially written for it and the Pet.

And the only way to move up to larger equipment while retaining similar software is to move to the Pet, a machine with limitations of its own. ☐

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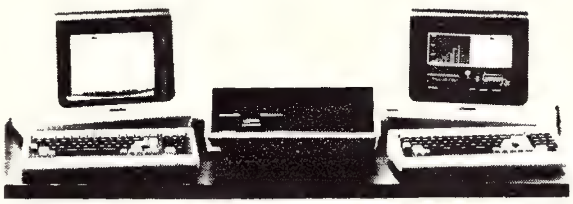

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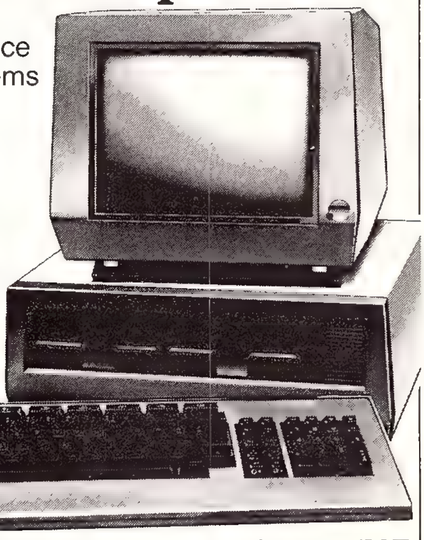

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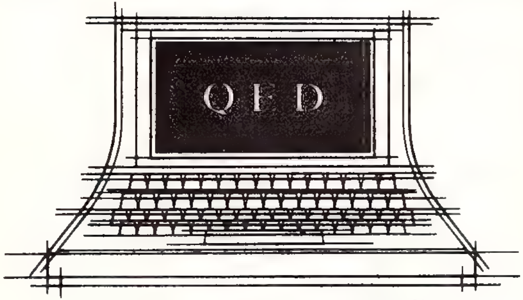

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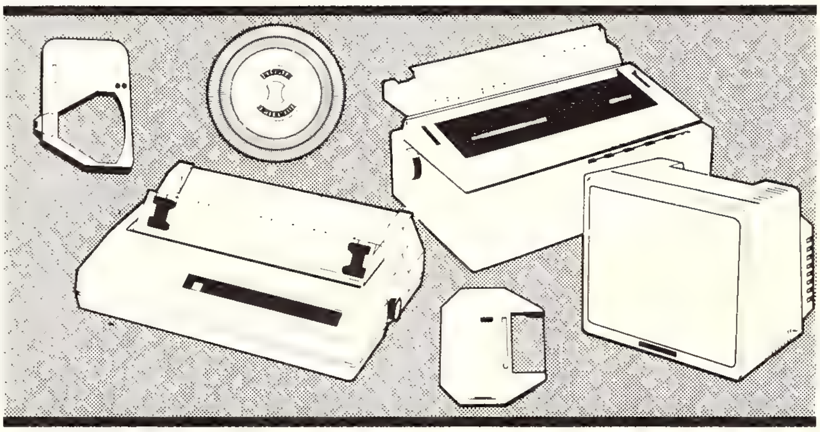

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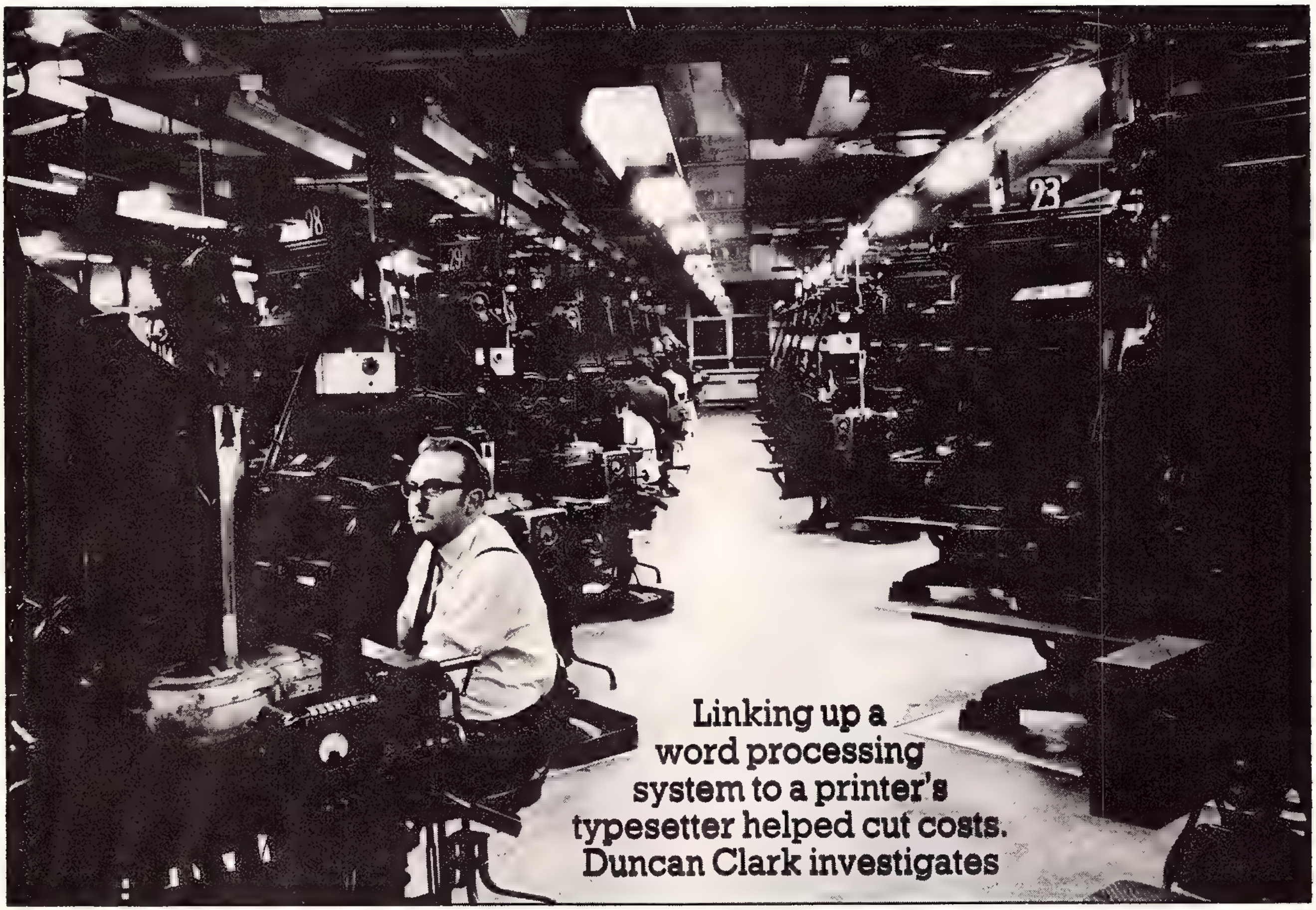


PAUL CONSTANT

Linking up a word processing system to a printer's typesetter helped cut costs. Duncan Clark investigates

This kind of traditional hot-metal typesetting technology cannot match the time and cost benefits of computerised systems

Success beams on the face of Ron Ford, managing director of Kentchase. Until seven years ago this small typesetters was the in-plant printing section of ICI, but it was sold off and now it's totally independent.

Kentchase, which employs 10 people, is the first printer in the Thames valley to interface his photocomposing machine, an AM (Addressograph Multigraph) Verityper, with a microcomputer used primarily for word processing.

When it came to choosing a micro in the first place there were two basic requirements. 'I wanted something which would link up effectively with the Verityper I already had, and something that would also cope with personalised mailing and general word processing functions,' said Ford. He sought advice from friends who are computer consultants and customers, as well as the AM Verityper manufacturer. 'They recommended a Superbrain.'

Ford now uses his micro to work out estimates for printing costs and says he can see it eventually doing accounts.

Before July of last year he'd managed to produce corrected copy on his American Verityper photocomposing machine by laborious checking and re-checking of proofs. This was the traditional way and the way of his competitors. Business had been steady but to attract more clients he had to come up with a faster and cheaper deal. With the Superbrain micro he bought for £2,095 just nine months ago he bypassed all the double checking and was able to reduce drastically the time factor. On the software side he's found the Datastar software product too slow, but for £250 the Wordstar package has been quite different.

With the new Superbrain, the whole production process for one job, including artwork and setting which would previously have taken at least three months to prepare and key in, took a mere five weeks! These figures emerged from the very first job he did with the micro – producing the annual *Directory Of Training*, a hard back, A4 format, 500 plus page reference book listing educational and training facilities for industry. Ford concedes that 'at first there was a bit of nailbiting but it went through like a dream'.

The trick is really very simple and takes full advantage of the Superbrain micro. All the information that the publisher wants printed plus any instructions are filed on a floppy disk compatible with the Superbrain. The disk is sent to the typesetter, who slots the disk into his micro which is plugged into the ▶

► photocomposer. If the client doesn't have a suitable disk Ford pops his photocomposer into his car, and takes it to the client's premises where, as long as the computer has a compatible RS 232 output plug, he can transfer the information. He says he could use a telephone modem to transmit the information in digital form but at £300 a year rental from the Post Office he reckons it's not worth it.

Only one proof reading is needed; the micro and photo-composer are automatically self-checking at speeds around 3,000 characters a minute. 'On average, work can be done twice as fast,' explains Ford. Of course, if there are any original errors on the disk coming from the publisher, apart from spelling mistakes, that's a different story.

Colin Steed, the editor of the *Directory Of Training* who also has a Superbrain, co-operated closely with Ron Ford on his first project with the new micro.

Says Steed: 'I had the computer knowledge, Ron had the printing know-how.' The *Directory* is a new venture and came out in January this year. An authority on book production had told Steed that it was at least a 12 month job – with his tight schedule he had to find a faster alternative.

'The whole operation, from collecting the information for the book to actually having it in our hands, took only four months!

'It went so smoothly it was incredible.'

One possible snag is that not all typesetting machines are compatible with the Superbrain, but if a printer has the right machine then '*not* to use it would be just wasting your time'.

'It's such a simple idea, everybody should be doing it. Anybody who doesn't use it must be crazy.'

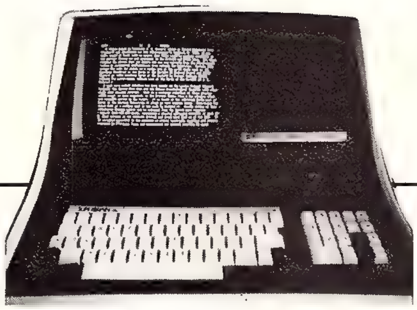
Naturally, as it was a brand new publication, the first run-through involved quite a bit of manual editing. This was because the software for the typesetter couldn't handle indentations for paragraphs and the numerous tables in the book. Ford also had to feed in details such as fount sizes and line length, and this all slowed the process down quite a lot.

But now that the details have been noted and the software amended to cope with indentation next year's book should only take about six weeks, and that's including all the pasting up and artwork!

While Kentchase does bring out some one-off books, mainly educational, its chief job is providing labels and product sheets for ICI, in addition to yearly reports, reviews and updates for organisations ranging from the BBC to the Masonic Society. For such work the new system is a godsend since the overall layout stays the same, it's just the details that change. These can simply be corrected on a disk; all the hard work is done at the outset.

Was the actual installation difficult? 'Not at all', says Ford. 'It took longer than it need have done because the machine was faulty, but the whole thing still only took an hour and a half.

'The Superbrain supplier worked quickly with the AM Verityper interfacing expert and we've had no problems since.' ☐



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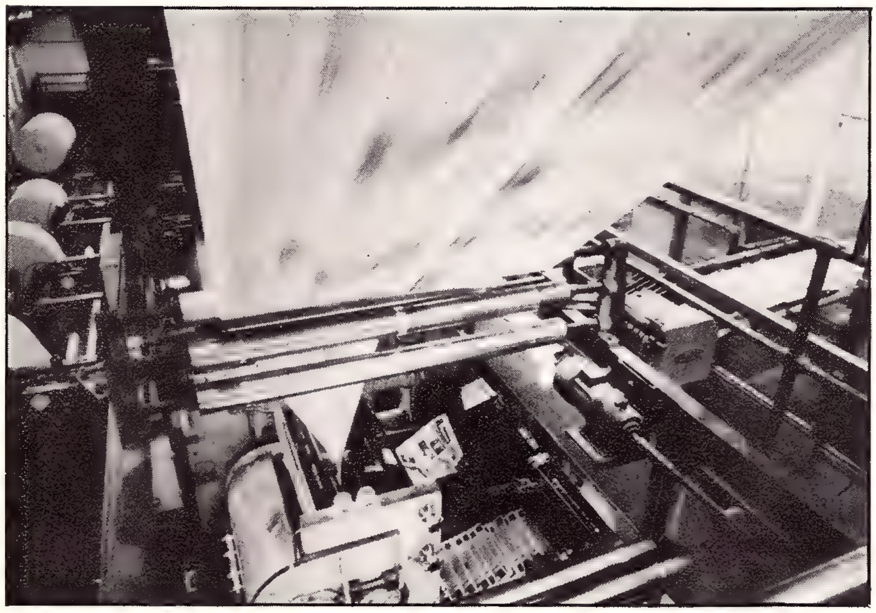
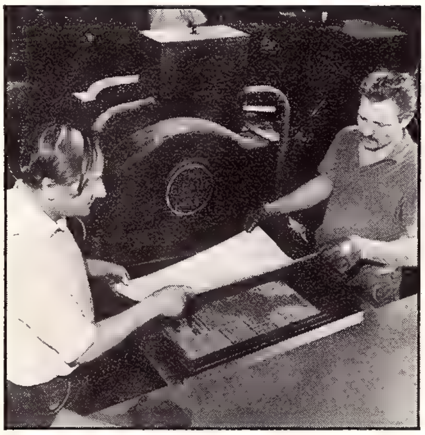
Fiona Newman investigates the effect of microcomputers on the printing industry

Printing in the grip of a micro



Off-the-shelf costing and estimating packages help printers manage their finances



Printers are traditional in outlook

Times are hard for small printing companies. Some are going out of business but some are looking at ways of fighting back. Efficient financial management and cheaper costs are essential for any small printing company which hopes to survive in such a depressed industry, and in both areas microcomputers are proving useful.

Several off-the-shelf costing and estimating packages are now available to help printers cope more efficiently with the financial side of their business. Harrison Computer Services in Colchester sells one such package, which was originally designed for Wiles and Sons, a Colchester printing company, to run on the Rair Black Box, but it can be tailored to other CP/M* hardware for £120 a day on top of the initial cost of £1,500.

According to Richard Mead, manager of Harrison Computer Services, the system is ideal for printers who 'operate in a conventional sense' and employ a professional estimator. The system can also be run by an inexperienced clerk who simply keys in parameters bought in by salesmen.

Wiles and Son has been using the system for two years and according to director Peter Wright, it was one of the first to use a microcomputer in this way. The system has not actually helped the company to save money although it no longer employs a professional estimator. Its main advantage has been to bring greater internal efficiency. Wiles also uses the microcomputer to run its sales and purchase ledger.

According to Wright estimating and costing systems are not used extensively because printers tend to be fairly traditional in their outlook. He also feels that rather than printers crying out for such a system, the microcomputer industry has seen a potential market in the printing industry and is beginning to develop suitable systems.

Harrison Computer Services has not begun to market the system, but according to Mead this is partly due to the fact that the industry 'has gone flat' although it is, he says, picking up again now.

Several other costing and estimating systems for printers are being produced and will be on the market later this year, but it remains to be seen whether any improvement in the industry will make these systems more popular.

It is perhaps in cutting the cost of actually typesetting that microcomputers will be of greater financial value. If small companies are to survive they must not only cut their costs but expand their market.

One of the most time consuming and therefore most expensive aspects of printing is the proof reading that must ▶

Sample of available systems

COMPANY	APPLICATION	COST
Harrison Computer Services 0206-867667	Runs on CP/M Rair Black Box can be tailored for other hardware.	£1,500 plus £120 a day for tailoring.
Michael Groom 0908-644848	Tailor-made packages for microcomputers for firms with annual turnover of £250,000-£500,000.	£2,000-£3,000.
Mayrich 01-628 3040	Estimating package to run on Apple II for companies who handle 200-15,000 live quotes.	From £5,000.
Aset 0704-43008	Costing package available later this year. CP/M-based to interface with certain purchase ledgers.	£500-£750.
Microbits 0734-792021	Estimating system to run on Zilog.	Cost varies.

Advance knowledge of the codes can mean proof reading is eliminated altogether

▶ be done to ensure that copy is as accurate as possible. If the writer can put this copy on disk using a word processor and the printer can interface his own word processor to the typesetting machine error free copy should result. The stage at which a printer has to read a writer's copy and keyboard it into the typesetting machine is thus completely cut out.

This system has two main problems: first, ensuring that both the writer's and the printer's word processors have the same program, and second, including the correct typesetting commands in the original copy. The typesetting keyboard has many more style options than a word processing keyboard, and conveying a working knowledge of typesetting to the writer is one of the main obstacles.

One company which claims to have overcome this is Randall Typographic, a London-based computer typesetting company. The customer can transfer his copy through a modem,* a Centronics port* or put it straight onto the company's own digital cassette, and let Randall Typographic put the typesetting commands onto the text, or he can do this himself.

The traditional way of typesetting

The company uses a universal typesetting program which has been developed by interface* manufacturers and which has 'user friendly' codes suitable for use by someone with no previous knowledge of typesetting.

According to Ian Glennie, marketing manager of Randall Typographic, the writer can learn to use the codes in three stages cutting down on proof reading at each stage. A customer who has an advanced knowledge of the codes can eliminate proof reading altogether, and Glennie claims that after the initial cost of £240 for the dictionary and command disk, someone with a typesetting bill of £12,000 a year can cut his costs by up to 50%.

Apart from these savings this method expands the market because more people can afford professional typesetting, especially important if printing done abroad at the moment is to be lured back to this country.

One company which uses this method to gain access to more unusual applications is Wordsmiths, a typesetting bureau in Somerset.

Director Tom Graves is sceptical about the easy working of the Universal Typesetting program. Wordsmiths' typesetting service, Anvil, offers the user a choice between numbered commands to represent typesetting instructions or full use of all the features of the typesetter with a Linotype typesetting

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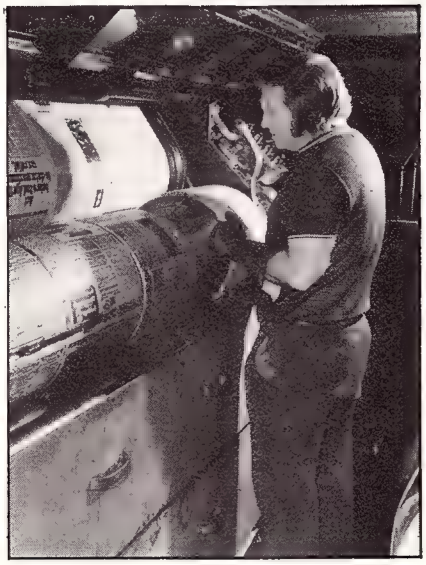
'Software compatibility between the word processors is not essential,' claims Graves

control language for more experienced users. 'Pre-processors' are also available for some programs such as Wordstar, which convert the word processor's commands directly into instructions for the typesetter.

Graves claims that software compatibility between the writer's word processor and the typesetter's word processor is not essential. Anvil can read direct from a disk from Apple, TRS-80 Model I or III, Pet or virtually any system which uses the CP/M operating system. If another type of system is used by the writer the text can be taken down-line via a modem or acoustic coupler.

Interest in the linking of word processors and phototypesetting is growing, and two reports dealing with this are available from the Printing Industries Research Association, (PIRA). The first, *Linking word processing to phototypesetting* has been sponsored by several clients and is available to both members and non-members of PIRA at £450 plus VAT and £550 plus VAT. The second, *Developments in printing technology and other technologies which will affect the printer and publisher* is an update of a 10-year forecast published in 1979. It has been jointly sponsored by PIRA, the Printing and Publishing Industry Training Board, and the Department of Industry, and includes a study of the linking of word processors and phototypesetters. This report will be available in June and will cost £100 for PIRA members and £200 for non-members. ☐



Times are hard for some printers

● The universal typesetting program is available from Electronic Village 01-994 6477.

***Modem:** a piece of equipment which converts signals for data transmission. Useful for sending data over a telephone line.
***CP/M:** an operating system which has become popular for microcomputers and makes different micros look the same to the software packages which are used with them.
***Centronics port:** a port is a communication channel through which data passes in and out of computer. The Centronics (or parallel) port is a common standard way to link computers and printer.
***Interface:** a connection between two units with different functions. The units must have compatible interfaces if they are to be linked up.
***Digital cassette:** this magnetic tape stores data rather than audio signals. Digital data is coded in patterns of the binary digits 1 and 0.

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The programme guide

Stock control, order processing, invoicing, statement production, payroll, general accounting . . . these are most of the jobs that a business will tackle every day. GRAFFCOM's Integrated Small Business Software packages – ISBS are designed to get these jobs done better and faster. ISBS can improve your productivity and give you better management control over your business.

For the smaller business user with a twin floppy disk based system, ISBS-F is the ideal starting point. A truly integrated accounting approach, the system offers simplicity of use without trade-offs in facilities. In fact most of the ISBS-F features can be found in mini and mainframe systems.

Companies with large data volumes and multiuser requirements should look at ISBS-W. The system supports multiple workstations and is designed to take full advantage of the latest hard disk storage based systems. As you would expect, ISBS-F users can easily convert to ISBS-W when the business expands through the System Migration Plan – SMP.

GRAFFCOM's software products have been designed for most CP/M, MP/M based microcomputer systems. All packages are supplied with comprehensive documentation and backed up with technical support, and maintenance to cover legislative changes. In addition there are products such as accounting guides and graphics programs available to complement and complete our service to the commercial user.

So whether you need professional application software to use or sell, then call us now for further details. (Computer suppliers should ask for information about our Dealer and Superdealer arrangements).

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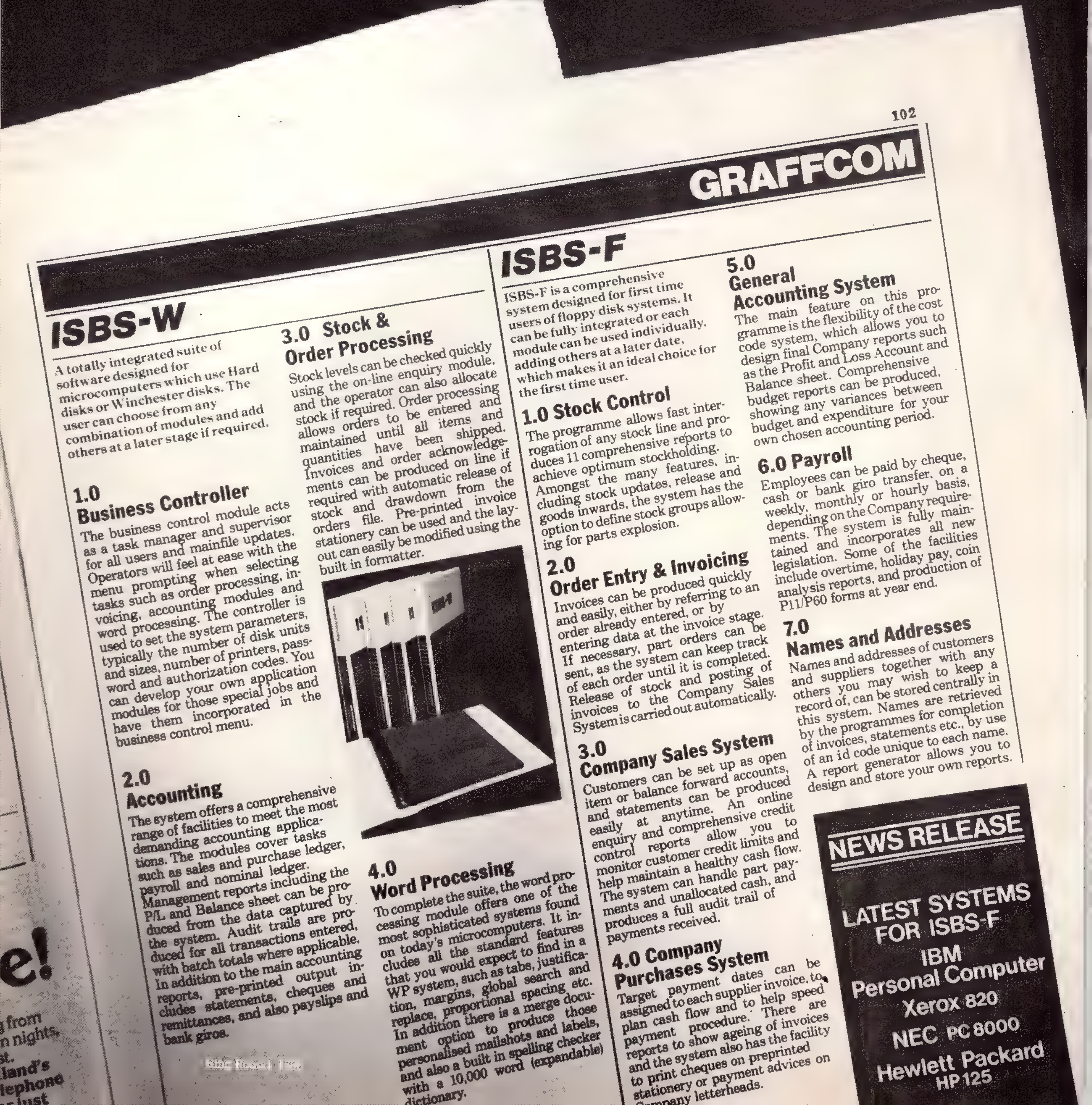
SYSTEMS GROUP
102 Portland Road London W11 4LX 01-727 5561



GRAFFCOM

ISBS-W

A totally integrated suite of software designed for microcomputers which use Hard disks or Winchester disks. The user can choose from any combination of modules and add others at a later stage if required.

1.0
Business Controller

The business control module acts as a task manager and supervisor for all users and mainfile updates. Operators will feel at ease with the menu prompting when selecting tasks such as order processing, invoicing, accounting modules and word processing. The controller is used to set the system parameters, typically the number of disk units and sizes, number of printers, password and authorization codes. You can develop your own application modules for those special jobs and have them incorporated in the business control menu.

2.0
Accounting

The system offers a comprehensive range of facilities to meet the most demanding accounting applications. The modules cover tasks such as sales and purchase ledger, payroll and nominal ledger. Management reports including the P/L and Balance sheet can be produced from the data captured by the system. Audit trails are produced for all transactions entered, with batch totals where applicable. In addition to the main accounting reports, pre-printed output includes statements, cheques and remittances, and also payslips and bank giros.

3.0 Stock & Order Processing

Stock levels can be checked quickly using the on-line enquiry module, and the operator can also allocate stock if required. Order processing allows orders to be entered and maintained until all items and quantities have been shipped. Invoices and order acknowledgements can be produced on line if required with automatic release of stock and drawdown from the orders file. Pre-printed invoice stationery can be used and the layout can easily be modified using the built in formatter.

4.0
Word Processing

To complete the suite, the word processing module offers one of the most sophisticated systems found on today's microcomputers. It includes all the standard features that you would expect to find in a WP system, such as tabs, justification, margins, global search and replace, proportional spacing etc. In addition there is a merge document option to produce those personalised mailshots and labels, and also a built in spelling checker with a 10,000 word (expandable) dictionary.

ISBS-F

ISBS-F is a comprehensive system designed for first time users of floppy disk systems. It can be fully integrated or each module can be used individually, adding others at a later date, which makes it an ideal choice for the first time user.

1.0 Stock Control

The programme allows fast interrogation of any stock line and produces 11 comprehensive reports to achieve optimum stockholding. Amongst the many features, including stock updates, release and goods inwards, the system has the option to define stock groups allowing for parts explosion.

2.0
Order Entry & Invoicing

Invoices can be produced quickly and easily, either by referring to an order already entered, or by entering data at the invoice stage. If necessary, part orders can be sent, as the system can keep track of each order until it is completed. Release of stock and posting of invoices to the Company Sales System is carried out automatically.

3.0
Company Sales System

Customers can be set up as open item or balance forward accounts, and statements can be produced easily at anytime. An online enquiry and comprehensive credit control reports allow you to monitor customer credit limits and help maintain a healthy cash flow. The system can handle part payments and unallocated cash, and produces a full audit trail of payments received.

4.0 Company Purchases System

Target payment dates can be assigned to each supplier invoice, to plan cash flow and to help speed payment procedure. There are reports to show ageing of invoices and the system also has the facility to print cheques on preprinted stationery or payment advices on Company letterheads.

5.0
General Accounting System

The main feature on this programme is the flexibility of the cost code system, which allows you to design final Company reports such as the Profit and Loss Account and Balance sheet. Comprehensive budget reports can be produced, showing any variances between budget and expenditure for your own chosen accounting period.

6.0 Payroll

Employees can be paid by cheque, cash or bank giro transfer, on a weekly, monthly or hourly basis, depending on the Company requirements. The system is fully maintained and incorporates all new legislation. Some of the facilities include overtime, holiday pay, coin analysis reports, and production of P11/P60 forms at year end.

7.0
Names and Addresses

Names and addresses of customers and suppliers together with any others you may wish to keep a record of, can be stored centrally in this system. Names are retrieved by the programmes for completion of invoices, statements etc., by use of an id code unique to each name. A report generator allows you to design and store your own reports.

NEWS RELEASE

LATEST SYSTEMS FOR ISBS-F

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NEC PC 8000
Hewlett Packard
HP 125

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Here is a complete list of all micro computers for business purpose for less than £2995,-*

1. Toshiba T-200

2. ____________

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4. ____________

T200
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Office International is the largest retailer of business equipment in the U.K., with over 130 outlets offering national sales and after-sales service.

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TOSHIBA

*

- including 64 KB memory
- 1920 character display
- two 5¼" disk units
- separate keyboard
- Toshiba business basic system with the availability of sequential, random and indexed sequential disk files
- matrix-printer 125 characters/sec.
- CP/M® 2,2 optional.

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TELEVIDEO SYSTEMS

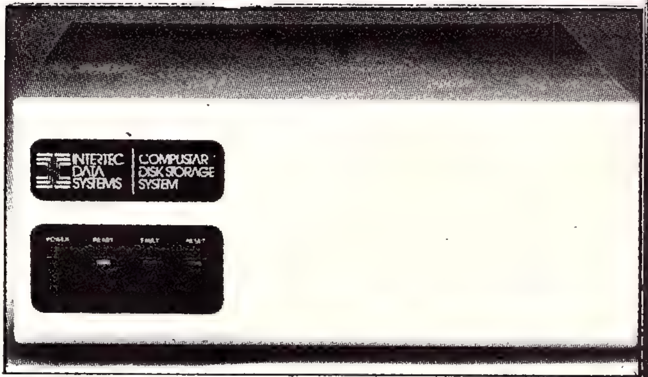
TeleVideo's TS 802 and TS 802H microcomputers are low-cost powerful single-user integrated computer systems. TeleVideo has combined its top of the line CRT display with an advanced design single board computer (Z80, 64K RAM) with 5¼" floppy disks and Winchester hard disk all in one attractive tabletop enclosure. A detached typewriter-style keyboard is also included. The TS 802 computer features two 5¼-inch floppy disks for 1 Mbyte of on-line storage, and the TS 802H includes one 5¼-inch Winchester disk drive for 10 Mbytes of data storage, and a single 500 Kbyte minifloppy disk unit.

Both the TS 802 and 802H use the industry standard CP/M 2.2 operating system. This lets the user fulfill a wide variety of information and word processing needs using a multitude of commonly available application programs.

TS 802 & 802H Features:

- Z80A 4 MHz processor with direct memory access
- 64 Kbytes of RAM main memory
- 4 Kbytes of EPROM for system diagnostics and boot loading
- Dual floppy disk controller (TS 802), and hard disk controller plus floppy disk controller (TS 802H)
- Dual minifloppy disks: 1 Mbyte capacity (TS 802)
- Single minifloppy disk (.5 Mbyte capacity), plus 10 Mbyte Winchester 5¼-inch hard disk (TS 802H)
- Green phosphor CRT (25 rows by 80 columns)

- Typewriter-style detached keyboard
- Full-screen attributes, editing, smooth scroll, 25th status line, 11 function keys, numeric key pad
- 2 RS-232C serial ports. These are jumper selectable for any combination of modems or printers
- CP/M 2.2 operating system
- Attractive tabletop enclosure, fully integrated with CRT, CPU, RAM and disk drives
- 1 RS-422 high-speed port



Functional characteristics
The CompuStar 10 megabyte Disk Storage System (DSS) consists of read/write and control electronics, read/write heads, a track positioning mechanism, a spindle drive mechanism, dual disks, an air filtration system, and our exclusive 255 user controller – all packaged in a compact desktop enclosure. Although designed primarily to accommodate multiple CompuStar Video Processing Units (described at left), the unit can easily be connected to a single SuperBrain Video Computer System to facilitate additional disk storage. When used with CompuStar VDUs, however, the integral Z80 based controller will permit up to 255 users to 'share' the resources of the disk with minimal CPU response degradation.

Read/Write Heads and Disks
The recoding media consists of a lubricated thin magnetic oxide coating on a 200mm diameter aluminium substrate. This coating for mulation, together with the low load force/low mass Winchester type flying heads, permits reliable contact start/stop operation. Data on each disk surface is read by one read/write head, each of which accesses 256 tracks.

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Simulations
Calc-type predictions
Bureaux services
Answer *what-if's*
Print reports

Budgeting
Address mailing
Time recording
Hospital indexing
General analysis
Employees records
Sort files

Cashflow
Letter writing
Filing
Profit analysis
Mathematics
Tabulate values
Edit records

Within hours perform all the above in French or German.
The list is as endless as that which meets the requirements of your own imagination.
Within the appropriate frames of reference you could ask questions like the following:
Find someone whose name contains a W or X or Y or Z, who is either in London or Birmingham, and available for work at a salary of less than 10,000.00; and is under 40 years of age, not married, of credit worthiness grade 1, with a car, prepared to travel, and who likes horses, does not mind the hours he works, is congenial and has good references. When you find such persons produce a printed list of them showing their names, telephone numbers, and what their salaries are as well as their salary if increased by 10% and show their availability for work. At the end of the list enumerate the total of such persons.

Find all stock items that are codes *micro-computers* that are either in warehouse 1 or warehouse 2, where the quanitity on hand is more than 50 units, the cost is less than 1000.00, the selling price higher than 2000.00; that are not in cartons, bought from supplier 52, allocated more than 20, rated for tax at .15% and weigh less than 50lbs. When you find such categories then print a report showing the description, cost price, quantity on hand, lead time for refills, what the selling price *should be if raised by 12.3%* as well as the profit in either per-cent or round figures of that projected selling price.
Find all patients who suffered from cold, that are either girls or women younger than 23 years old, and who live in London at a socio-economic grade higher than 3; do not smoke; have more than 3 children, are currently at work and where treatment failed to effect a cure in under 6 days. When you find such persons then print a list showing their age, marital status, income, and frequency of illness in the past 2 years.
Currently you can ask *7 types* of questions *20 times* for a single selection criterion, and then you can compute *10 mathematical relationships* between the questions for the individual *as well as* for the total number of matches. In all some 60 bits of information relating to one record or a group or records on simply one permutation of the selection criterion, with a cross referencing facility as well.
Every word in the system, as well as the file architectures, print masks, and field attributes, is capable of alteration by you *without* programming expertise (but with some thought).
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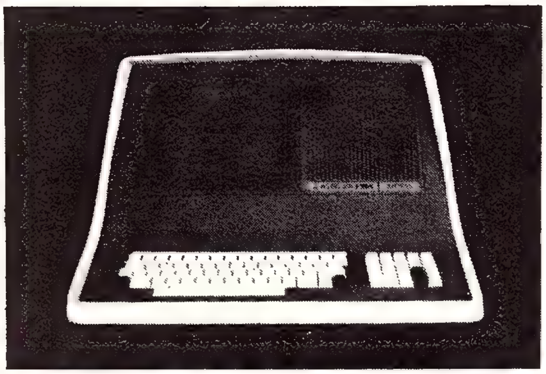

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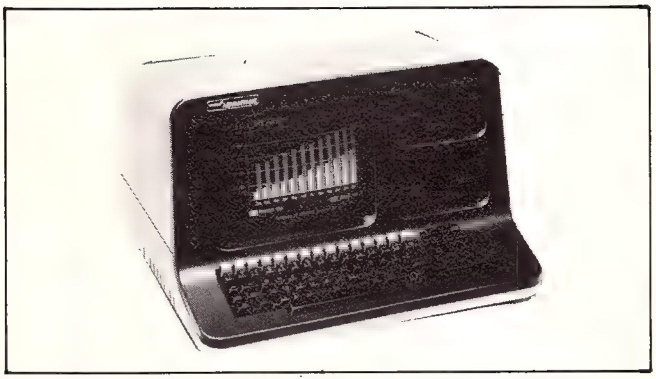

Integrated Desk Top Computer with 12 inch Bit-Mapped Graphics or Character Display, 64Kb RAM, 4 MHz Z80A,® Two Quad Capacity Floppy Disk Drives, Selectric® Style 87 Key Keyboard, Business Graphics Software

The North Star ADVANTAGE™ is an interactive integrated graphics computer supplying the single user with a balanced set of Business-Date, Word, or Scientific-Data processing capabilities along with both character and graphics output. ADVANTAGE is fully supported by North Star's wide range of System and Application Software.

The ADVANTAGE contains a 4 MHz Z80A® CPU with 64Kb of 200 nsec Dynamic RAM (with parity) for program storage, a separate 20Kb 200nsec RAM to drive the bit-mapped display, a 2Kb bootstrap PROM and an auxiliary Intel 8035 microprocessor to control the keyboard and floppy disks. The display can be operated as a 1920 (24 lines by 80 characters) character display or as a bit-mapped display (240 x 640 pixels), where each pixel is controlled by one bit in the 20Kb display RAM. The two integrated 5¼ inch floppy disks are double-sided, double-density providing storage of 360Kb per drive for a total of 720Kb. The n-key rollover Selectric style keyboard contains 49 standard typewriter keys, 9 symbol or control keys, a 14 key numeric/cursor control pad and 15 user programmable function keys.

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04 = OPEN PURCHASE LEDGER
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07 = BANK UPDATE
08 = USER DATABASE AREA
09 = INVOICE CREATION
10 = ORDER FILES
11 = TEXT FILES
12 = EMPLOYEE FILES
13 = STATEMENTS
14 = TAX REPORTS
15 = AGED ANALYSIS
16 = MANAGEMENT ANALYSIS
17 = CASHFLOW FORECAST
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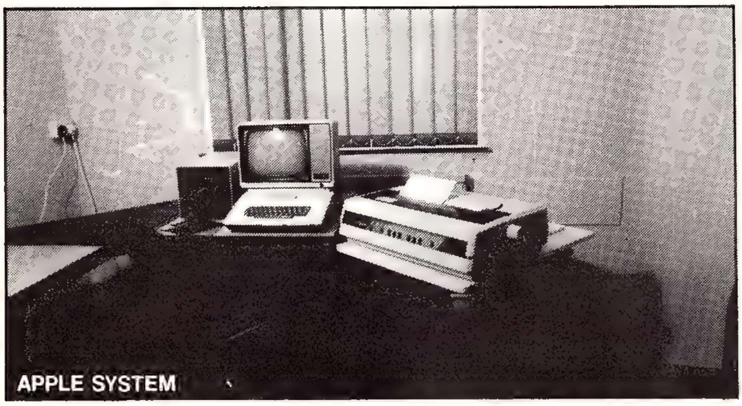
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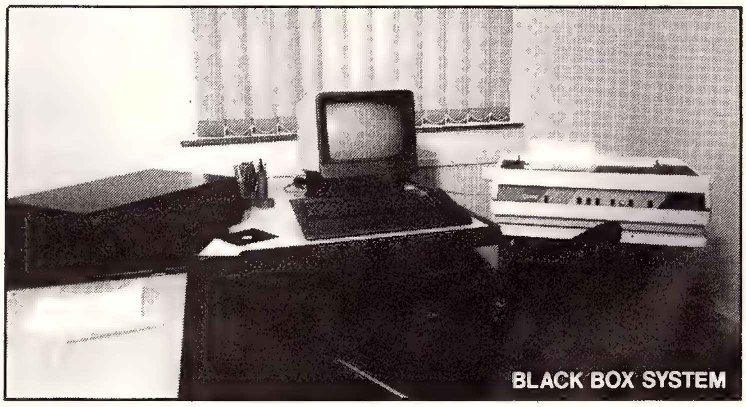
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Estate agents' reactions to micros are mixed, but some are converted, as Deirdre Collins discovers

Feeling at home with micros

Changes are afoot for estate agents. Microcomputers are slowly moving into the business, both at the local and the national level.

When someone goes to an estate agent's, under the traditional system they sit down in the plush office and describe the sort of property they are looking for. It's then a long slog for someone to search out the properties which fit the client's requirements, gather the details about those properties together and post them to the client. When an agent has hundreds of clients and properties on his or her books, it is almost impossible to run the system efficiently, a job which entails sending out details of the maximum number of suitable properties with the minimum expenditure of time and human effort.

Software has been written to allow the computerised matching of buyers and properties, property management, production of standard letters and details about properties, filing, valuation, property cost recording and management of advertising copy, to name but a few.

Says John Ambler of the Property Agents Computer Team (PACT), 'A micro can cut the work down in all these areas for even small estate agents. When you use a micro for matching properties with buyers, you have to have a system that lets you structure the file. People often don't say what they actually want and the estate agent has to make a calculated guess as to what they would be interested in. So in any system it must be possible to relax one or two of the constraints so that more properties become suitable. This takes a lot of time if a micro is not used. And when you get up to the multi-branch level things can get very complicated indeed. Using the micro reduces the work involved and in effect lets you open six doors instead of half a door.'

Adds Anthony Clark at the National Association of Estate Agents (NAEA): 'Micros don't get sick, need luncheon vouchers, go on holiday or get pregnant.

'In general the computer systems have simple instructions so it doesn't take long to get used to them – two or three days should be enough.

'The estate agents who buy micros are using them mainly for secretarial tasks, property matching and property management. And many buy with an eye to upgrading the system later.'

So what is the attitude of estate agents to microcomputers? *MicroDecision* spoke to three agents to find out.

Leslie Mellor is an estate agent in Stockport, Greater Manchester. It has four offices in the area, with about 20 members of staff. Computers have been considered but rejected because they are 'too expensive' and the file and card system has been retained.

Andrews & Partners is an estate agents in Orpington, Kent, which recently started to use a micro in two of its 40 branches.

'We bought the Alpha estates system from John Elmer in Sussex (see table). We've had it a month,' says Dudley Gillham, district manager at Andrews & Partners. 'The system was easy to get used to and it took about a week to get our current data on disk.

'I think we use the system differently to the way envisaged by Elmer. We don't use it up front when a customer comes in as this would cause queueing especially during our busy periods.'

The system is used to match buyers and properties, to produce print-outs of suitable clients and properties, and to produce standard letters and sticky address labels.

'We had a few sessions with the machine before we bought it, and had some training visits once it was here. We've had no real problems with it.

'The price would probably have been too high if we didn't have the word processor.'

How did Andrews & Partners choose a system? Says Gillham: 'We had found out about lots of systems and whittled the list down to three, before finally settling on this system. We didn't want a complicated estate agents program that we couldn't use and the Alpha estates package did what we wanted.'

The system links two branches. 'If the system works well,' says Gillham, 'we may link up with the other branches.

In general, feels Gillham, the micro has saved time on producing mailshots and word processing. 'But it's too soon to say how much time is being saved.'

Why did this estate agent think of getting a micro in the first place? 'Well the decision was made by the board. But you've got to use the opportunities provided by the times we live in,' says Gillham.

A spokesman for Elmer was, not surprisingly, full of praise for the Alpha estates system. 'It can search for lots of different types of property at one time and produce a print-out. All the information can be displayed one at a time or in summary. When you want to keep up-to-date with sub-agents the micro will produce reports on properties ▶

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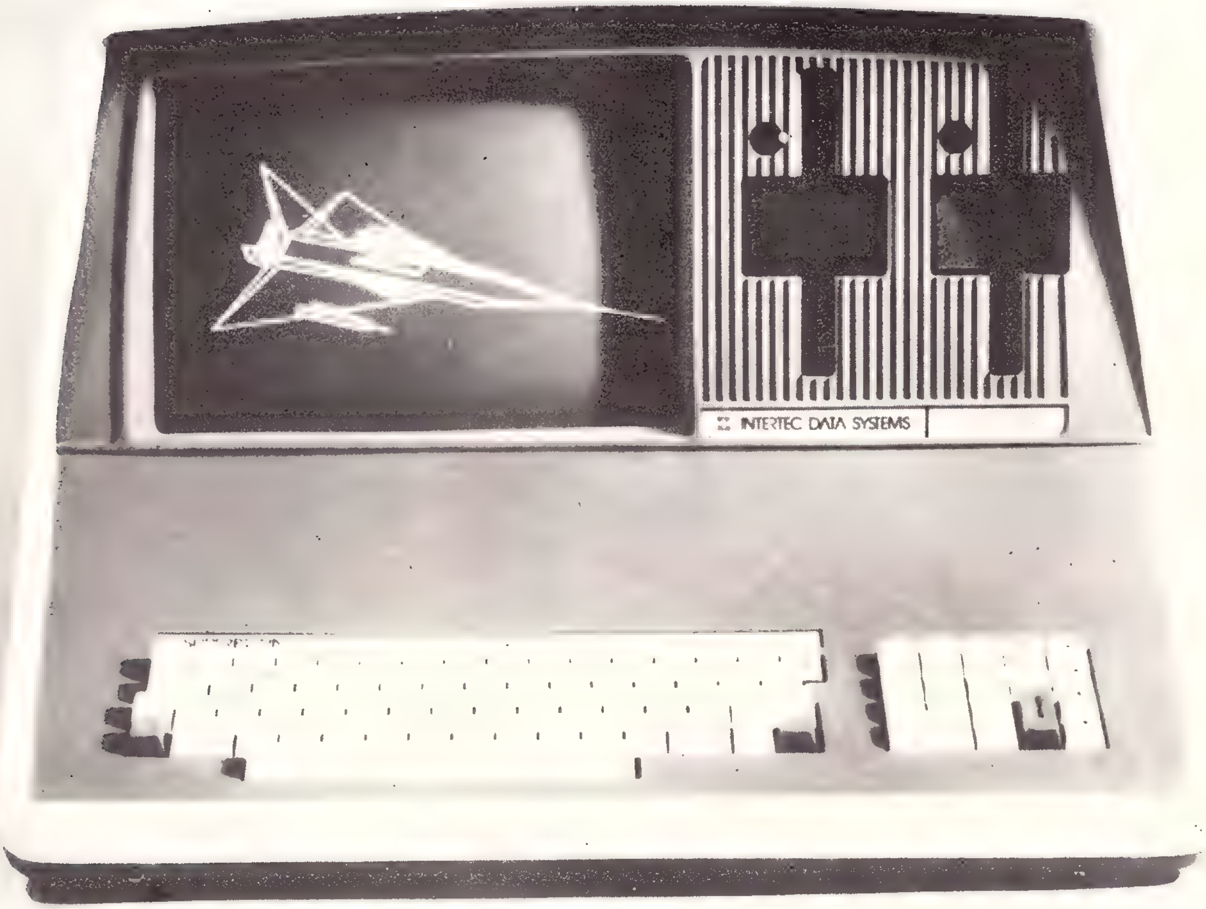

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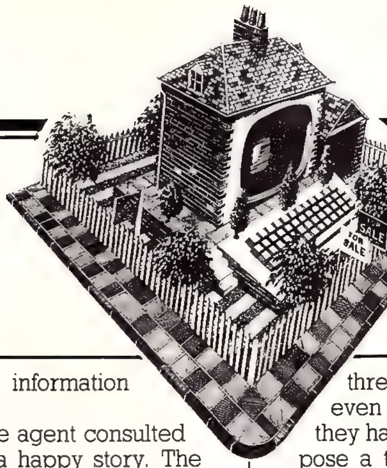

► using updated information from sub-agents.'

The third estate agent consulted did not provide a happy story. The London agent, which preferred to remain nameless until the problems have been sorted out, has many branches. It purchased a microcomputer system some months ago and, according to the firm, 'we are worse off now than we were before we got the micro.'

The programs, it is claimed, do not seem to understand what the agent wants the system to do. 'The person who comes to rewrite the programs does not appear to listen to what we want. The company also said it would supply all sorts of things as well as the basic equipment, such as training, but it hasn't done.

'The programs supplied dealt with estate management, the house and flat list, and word processing. But using the micro has resulted in delays and increased costs for customers.'

A more unconventional method of selling and buying properties is thriving solely because it is based on microcomputers. Homeline is an organisation which matches up potential buyers and properties at a maximum cost to the seller of £90.

Says Neil Battenberg, computer manager at Homeline: 'We use Apple II and Apple II Plus micros, property matching software controlled by a Homework program, and hard disk storage.

Buyers pay no money to register with Homeline, sellers pay a registration fee of £2 per £1,000 of the asking price to a maximum of £90. The service is advertised on the radio, women's magazines, and in Yellow Pages. 'Sellers phone up to ask what we do, and we send them the details and a registration form. If they're interested they return the completed form with the registration fee. The average property costs £30,000 so for a vendor the average cost of going on Homeline is £60,' says Battenburg.

There are about 15,000 buyers on Homeline's stocks at any one time, and the maximum time a buyer is kept on the books depends on the price of the property being sought – for example it is about 40 days for a £30,000 property.

'We take down the details,' says Battenburg, 'and the information is fed into the computer. At knocking off time we run the Homework program which then matches buyers to sellers, the information is stored and then the printer produces a print-out. We throw these print-outs into envelopes and send them off.

'Homeline is in its third year now and we feel it fits into the present property market very well,' says Battenburg. 'In the beginning estate agents felt very threatened by us, but now some even register properties which they have found hard to sell. We do pose a threat to estate agents who extort money from clients, but for the rest we fit in quite well.'

The National Association of Estate Agents is investigating the whole topic of microcomputers in estate agency. 'We realise that the age of technology is here and we have two computerisation working parties, one looking at uses of micros in the NAEA and the other looking at uses for estate agents. We are concentrating on already written packages.

'The Association wants to evaluate the market so it can make recommendations to members,' says Clark.

'At present we have an informal system whereby when a client is moving from, say Inverness to Penzance, a member in Inverness can phone another member in Penzance to find out if they have any suitable properties available.'

'This system is about to be formalised in a system called Homelink, and this could then be computerised so it works on the regional, national and even international basis, should the demand be there.

> **It's the agents with the most properties that succeed, so it's essential to be able to link branches**

'At the moment though we recommend that estate agents who are buying micros do so with an eye to upgrading, and buy the biggest capacity they can afford.'

Whether a system is good or bad depends on how well it has been designed, according to a spokesman for Heywoods-Property World. 'Some systems may have been written for one estate agent and then sold to other agents for whom the system is not really suitable.

'The theme in estate agency today,' he continues, 'is the "biggest market" – it's the agents with the most properties that are succeeding. Unless branches are able to communicate with each other, they will lose out in the market. So it is essential for your system to allow you to link up with other branches.'

For an estate agent to succeed, both buyers and sellers must feel confident that the agent will be able to provide them with the service they seek, and this may be where the microcomputer offers the greatest help. ☐

The following table provides a large selection of systems.

Sample of Available Software

COMPANY	SYSTEM	APPLICATIONS	HARDWARE	COST
Estate Computer Systems Lincolnshire 0529-305637	Clients accountancy system for property management	Automates estate management, eg letting, rents, credit, service charges, fees	Apple	£4,500 for Basic version £6,500 for Pascal
	Residential, commercial and business transfer matching systems	Matching buyers' requirements with properties	Apple	Each is £3,650 in Basic £5,500 in Pascal
Selven Systems Essex 0376 519413	Matsense	Property sales and selection	Any CP/M machine with 64K memory	£1,000 for software only or £7,000 + depending on hardware
Chris Robinson Consultants Bedfordshire 0582 872940	Alphasoft	Matches buyer's requirements with properties, can send details to vendors about properties	Alphatronic P II	£525 for software only, £3,000 + for complete system
CAP London 01-831 6144	Agency package	Matches vendors and properties	Any MicroCobol machine eg TRS80 II or Sharp PC3200	£1,000 for software
	Property management	Property management		£4,000 for software
Blue Chip Microsystems Somerset 0935 20781	Orion	Estate agency Word processing Accounts	Single-user system on CP/M or Multi-user system on Alphamicro	£6,000 for complete system £20-40,000 for whole system
		Property management		£5,000 for software only
		Auctioneers' salesroom		As above
Applied Systems Techniques London 01-242 4127	Residential agency	Matches buyers and property	Alphamicro	£4,000 for software, including residential and commercial
	Commercial/industrial	As above		
	Property management	Property management		£5,000 for software
	Word processing	Word processing		£1,000 for software
	Mailing list	Mailing list		£750 for software
Stage One Computers Dorset 0202 735 656	Estate agents package	Matches buyers and properties Printout of applicants liable to be interested in a property Word processor	Commodore 4016 Commodore 4032	£400 + VAT for software alone. £1,800 + VAT for whole system
Cyderpress Wallingford 0491 37769	Residential estate agents system	Matches properties and buyers	Apple 5¼ in disk	£750 software
			Apple 8 in disk	£800 software
			Rair Black Box	£1,150 software
	London residential estate agents	As above but for London	Apple 5¼ in disk	£750 software
			Apple 8 in disk	£800 software
	Commercial system	As above but for commercial properties	Apple 8 in disk	£850
			Rair Black Box	£1,150
	Property cost recording	Recording costs	Apple 5¼ or 8 in	£300
	Valuation packages	Valuation	Apple	£200-250 software
	Instruction file	Filing	Apple	£195
	Property managment	Management property	Apple 8 in	£1,500
			Black Box	£2,000
	Flexible mailing	As indicated	Apple	£50
			Black Box	£60
	Comparable recording	As indicated	Black Box	£350
Dalton Woodland (Trek Division) Kent 03045 3386	Trek estate agents integrated system	Property register, applicant matching, mailing, advertising, archives, file interrogation and updating business accounts	Tandy TRS80 II with 64K and two drives	
Informex London 01-318 4213	Estate agents system	Matches buyers and properties	Apple	£480 + VAT for software
John Elmer Office Equipment Sussex 044 465 670	Alpha estates	Matches properties and buyers	Alphatronic	£525 for software, or £2,825 for whole system
Heywoods Property World Manchester 061 941 4053	Profile	House sales	FTS Series 88	From £6,000 for whole system including house sales package
		Property management		£950 for property management software
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Putting a micro on the map

Critical of the salesmen, the exhibitions and the absence of good advice, a map gallery owner seems to have found the way to success unaided, says Liz Vousden

Bannister has found a lack of computer advice

Cheltenham has always prided itself on a certain aura of history and culture, and David Bannister, a local businessman, was quick to combine these into a service which rapidly became a thriving small business.

The Regent Gallery is a leading dealer in old maps, topographical and decorative prints and old atlases, buying and selling worldwide.

Bannister started his business 20 years ago with £11 in his pocket and would describe himself as one of the entrepreneurs Mrs Thatcher most wants to help. But he has not needed any assistance, for the stable value of the sixteenth and seventeenth century map market has guaranteed him an annual turnover well into six figures.

It is not surprising that with a stock of 3,500 maps and a mailing list of 600 customers, Bannister was worried about the simple problem of communication. 'I'll tell you exactly what happened. I had a letter from a man on the Isle of Wight asking me what world maps I had.' He was not particularly impressed by the correspondence which was written on 'sub-standard, lined Woolworth-type' paper and was virtually illegible. 'We get these kinds of letters all the time from all sorts of odd people, even kids. I often throw them in the bin!' As the catalogues are expensive to produce, he cannot send them to all and sundry.

On this occasion he decided to drop his correspondent a note and the man eventually bought a map for £2,000. 'At this point I realised my mistake. How many had I missed, just thrown in the bin?'

To reply to every enquiry satisfactorily, the Regent Gallery had two options: employ another person or buy a microcomputer. This presented Bannister with a dilemma, as he has very strong views about the effects of microtechnology on unemployment statistics. 'To my mind, to say that it does not threaten jobs, as many 'experts' claim, is absolute rubbish. Let's face it, it has enabled us to do the job of another employee without paying a salary.'

His personal experience of unemployment made him even more reluctant to choose the mechanical option. So why did he? He is a businessman and 'this doesn't go sick'. But perhaps more important, he feels that correct use of a microcomputer should allow the staff to do more work, relieving them of the more mundane duties.

Bannister already had experience of a Commodore Pet in his own home. 'When I bought it, it didn't really have the capability and you could not seriously contemplate using it as a business machine. They were new on the market and hadn't even been converted for UK voltage at the time.'

His partner, Peter Baxter, (who has since moved on) had enough computer knowledge to draw up a detailed specification of their needs and this was sent to various firms for correction and comment.

'We had limited finance. We looked at advertisements and various magazines and travelled miles to talk to the people who were selling them.'

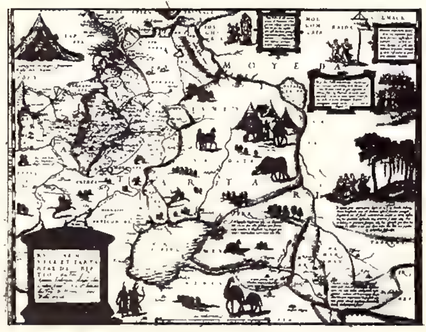
Regent Gallery eventually bought its hardware from the Byte Shop in Nottingham. The system was the North Star Horizon, made in California. The package included a keyboard and separate visual display unit (£665); double density single sided drives (£325) and a Volker Craig NEC Spinwriter (£1,500). The double sided double density drives he bought later brought the cost to just under £5,000.

Bannister's original matrix printer proved unsatisfactory, so he changed it. He was not happy with its performance on letters and decided to opt for a daisywheel printer which tends to give a better quality letter text.

'People should never buy the hardware first and then look around for the software,' said Bannister. 'This way they will come unstuck. You must have a cast iron guarantee that they can supply the software.'

Although he concedes that standard packages 'are okay' for more general needs like accountancy, he prefers specially-written programs – particularly when the function is specific to one kind of business. 'After all, why compromise and have something that's

AMERICÆ PERVVI



BRIAN DONNAN

David Bannister was missing sales because he could not reply to all the enquiries

almost right, when you can have something which is a perfect fit?'

However, one thing he is emphatic about. 'It is essential that you don't have standard packages modified: either use them as they are, or have one specially written.' Through his initial enquiries, Bannister discovered that to buy a standard package and then have it modified was going to cost him considerably more than having one specially written.

With all these points in mind Bannister, on the suggestion of the Byte Shop, approached John Potter of Lovedon Computers. Potter wrote a special program which was later to be modified by Peter Baxter who put a word processing function into it and adjusted the stock package for information retrieval.

Regent Gallery's special program is called MAPPOX and carries out stock control and evaluation; customer records; accounting; word processing and of course map entry and listing.

It analyses the large stock of over 1,000 major maps and 2,500 smaller ones according to region, cartographer, the map's value and its status. These maps cover a multitude of different countries and their individual regions, with 16 major cartographers and a number of minor ones. The 'status' analysis of each map tells Bannister whether the map in question is available, out on approval, on loan, framed or sold but not yet recorded as such.

The program is written in such a way that even the unskilled, for instance his secretary, can enter every map detail straight from the data form. The micro asks the users if they are 'experienced' or 'inexperienced' and issues instructions accordingly. These separate references are similarly duplicated on the entry form, with an additional duplication description for the potential buyer.

Using the stock control and evaluation function he can print out the value of the stock and additionally, a 'deletion list' for items sold (at cost price). This latter list provides useful information about profits. There is also a record of cheaper maps and the number within each category.

He is obviously delighted with this program which has saved him a lot of time and anxiety, but he warns that changing to a computerised system is not the smooth ride people think it will be. 'People must appreciate the amount of work involved in getting the stock into their stock control program. It is an immense amount of work and it takes a lot of time to do it. You must be disciplined.'

The customer records function registers each customer by the first four letters of their surname and incorporates specific details of the customer's individual interests. It provides names for standard letters and will also print the appropriate labels.

Bannister gets particularly excited when he talks about his Wordstar program and is continually fascinated by its capacity. 'It's fantastic! It can give me complete text manipulation.' He has never prided himself on his typing and gives his wholehearted support to any system that can help him with this. 'The tabs and spacing are automatic – he just types away and the printer arranges the words and the layout before his very eyes. 'When it comes to laying out neat accurately-spaced forms it is very impressive. Even I can do that now.'

Wordstar will produce 'map copies' – written descriptions of maps and the information they contain, for customers to look at in the showroom.

Noticeably, some aspects of the program were rather slow to recall selected information. Did this worry him?

'No it doesn't bother me. It's fast when we need it.' He explained that it is only slow at recalling less essential data, and when they need quick recall, it is virtually instantaneous. 'For instance, when a customer rings up for information about our stock, we can have that information available immediately on the screen as we talk to them.'

If anything he is surprised at the general obsession with speed. While his North Star Horizon performs many of its tasks, he leaves it to its own devices while he talks to customers in the shop downstairs, and collects the results at a convenient moment.

Bannister concedes that it is probably too early to comment on his microcomputer's performance as he only ▶

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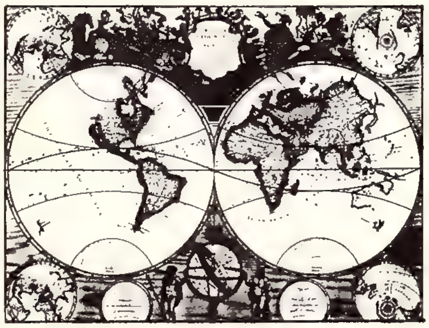

'In Britain the source of investment finance is still with the landed gentry,' he said

▶ recently began to familiarise himself with it, as his ex-partner had been the main operator. However, he has no doubts about its amazing potential, and so far is full of praise.

He certainly seems to have escaped the usual technical problems associated with a new installation.

In fact initially he had a maintenance contract, which cost about 10% of the purchase price. 'We dropped it. It was expensive but we had no need for it, we never used it.'

As a corollary, Bannister has no desire to change his micro. 'I don't see why I should. I have heard there are better systems on the market, but I am quite happy with the one I have.' The only change he would make, with hindsight, is to invest in hard disks, which he feels are far superior.

Bannister is fairly resigned about the absence of business advice for the micro user.

'As a general principle, it is impossible to go out and get advice from the standard professions you would go to that are relevant to small business. They are not equipped.

'One of the saddest things – the dreadful things – about Britain, I suggest, is that the Industrial Revolution was not a social revolution too, so the source of finance is still with the landed gentry.

'Unfortunately there is no communication between the owners of the wealth and the people producing the money for them.'

Bannister is particularly apprehensive about 'the computer salesman', who he has scathingly placed in two categories. 'The first is the jumped-up typewriter salesman, and the second the computer 'expert' who can write a very impressive whiz space invader program. Neither type knows anything about your business.'

He is also critical of most of the large computer exhibitions. 'Useless! Useless.'

He is convinced that the most useful thing to do before buying a microcomputer is to visit someone already using one for their business. He has offered to show his own model to any businessman who is thinking of buying the same model – providing they ring him first, of course, as he might be out of the country tracking down yet another seventeenth century map to add to his collection. ☐

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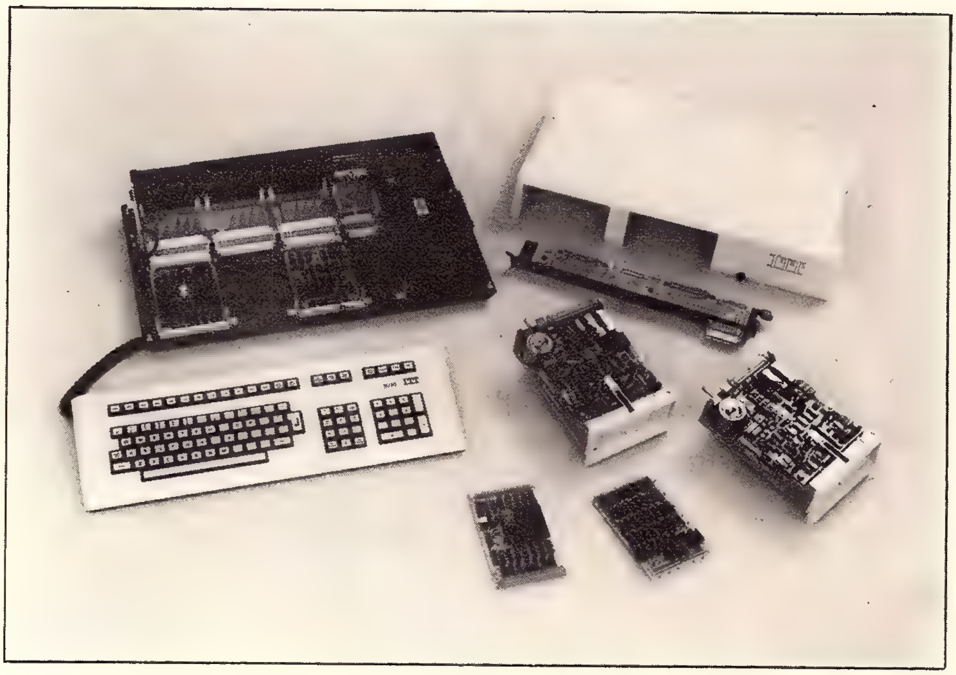

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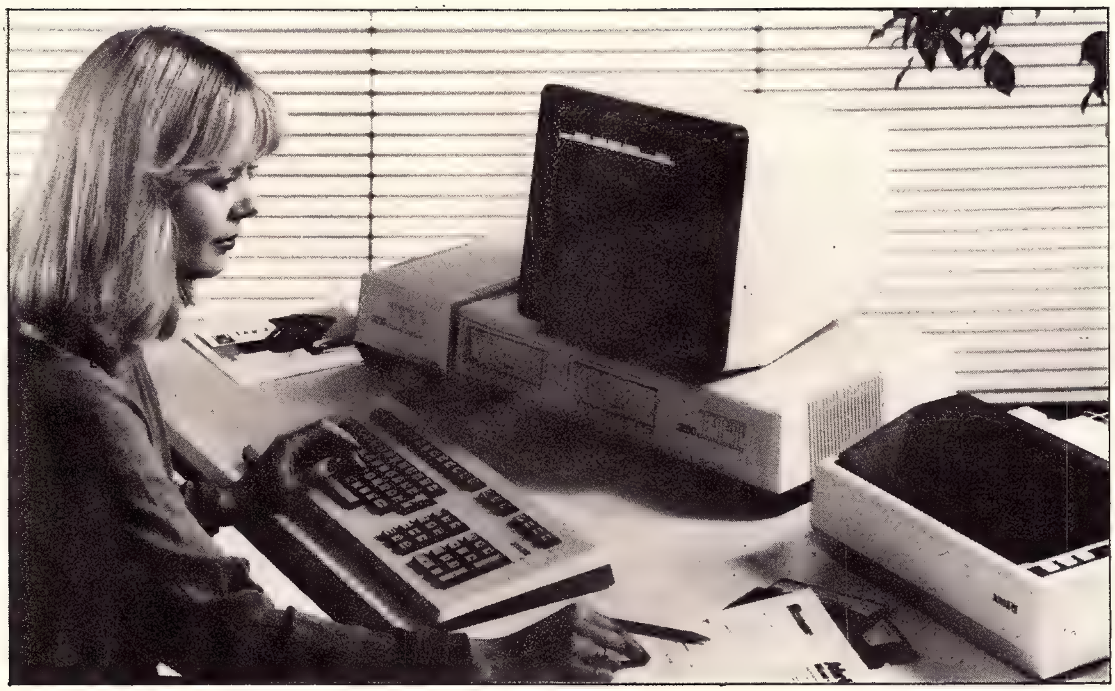

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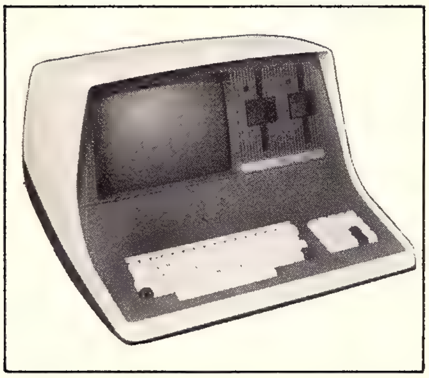

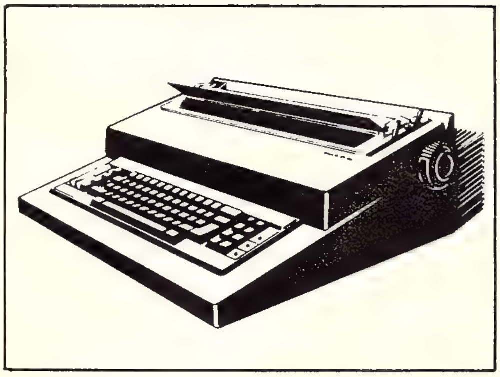

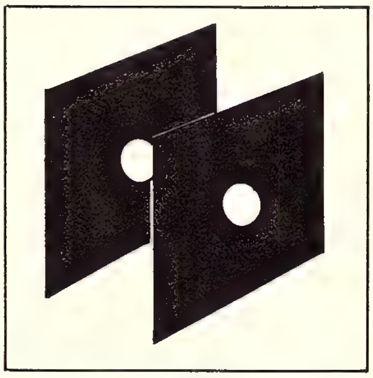

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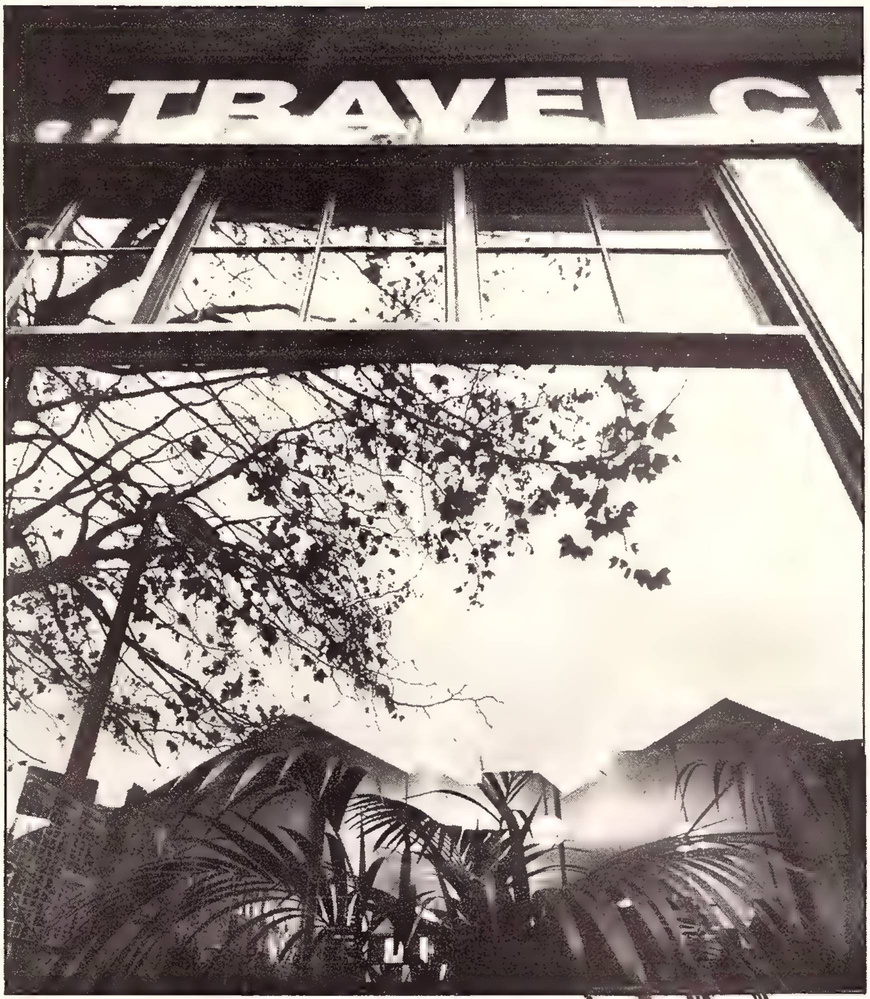


Specialist travel agencies must look after the small details

No holiday for busy travel agents

Six months after buying its Commodore, a travel agent still has not managed to make the system work. Liz Vousden investigates a sad story of disputed responsibility

A red-brick Victorian semi in a tree-lined residential street seems unlikely premises for a travel agents, but in Leckhampton, outside Cheltenham, you will find an impressive travel company in just such a house, looking more like an estate agent than a specialist in Algarve holidays.

Anthony and Valerie Maclaine are the proprietors of Algarve Holidays — a successful tour operating company organising villa and apartment holidays in Alburfreira in Portugal. They hold contracts on 24, mainly Portuguese-owned properties, and are taking on another seven. With an expected 1,500–2,000 clients passing through their hands this year, they have a very busy schedule and a long day, sometimes 14 hours long.

Algarve Holidays operates on a mail order basis with occasional custom coming through recommendation. Because they have exclusive contracts on all the properties they use, the Maclaines do not share the travel agent's 'double booking' nightmare and are able to offer short notice holidays. However, avoiding the middle man is a mixed blessing. It means they are totally dependent on their own efforts and an empty property means loss of money.

As part of its total package Algarve Holidays includes an optional return flight. With an allocation of 30 seats from various airlines they have to synchronise the accommodation and flight needs of each client carefully.

The Maclaines do not supply brochures. 'It's far too expensive,' said Anthony. 'Someone rings up and we try to ascertain exactly what they are looking for. We then send details of properties they might be interested in.' They send a full page description, plus colour photographs of the property, both inside and out.

Although the couple do have English-speaking Portuguese agents on the spot, they pride themselves on the fact that they know and have vetted all the properties themselves. 'In many cases, we have watched them being built.'

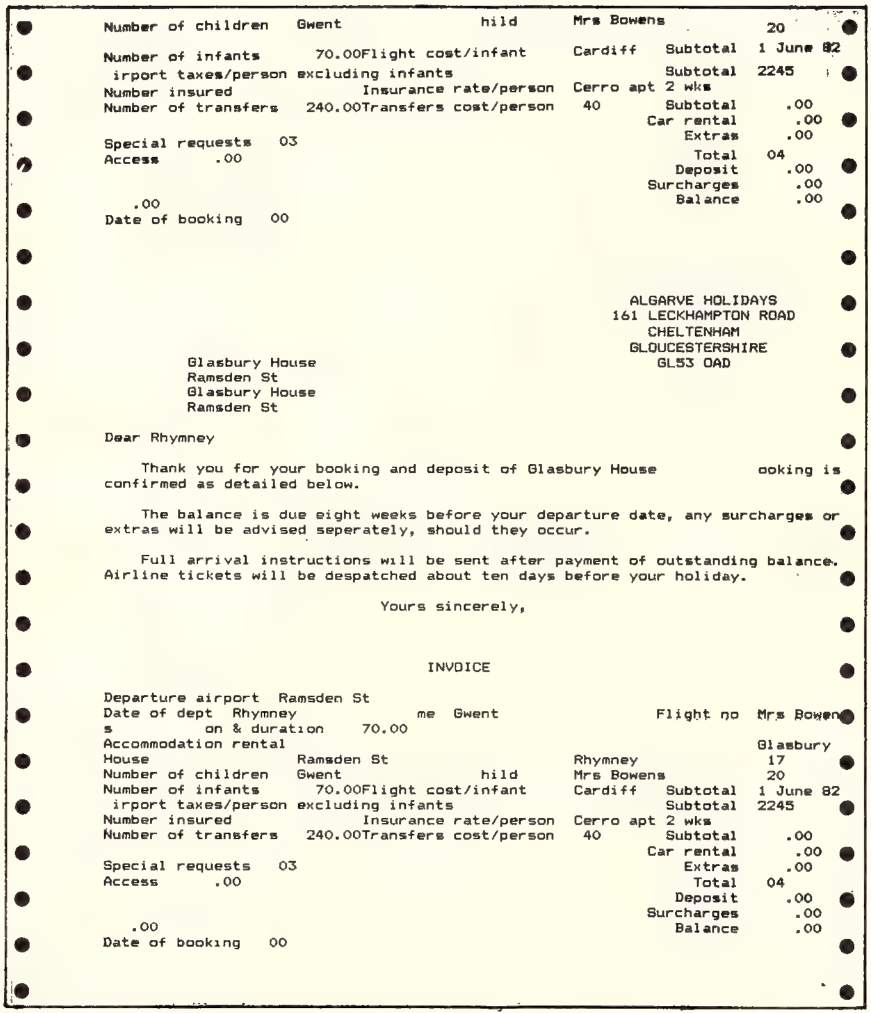
These regular visits are, in Valerie's view, absolutely essential but in high season things were getting quite frenetic and they really needed another pair of hands. 'It meant that neither of us could get away to Portugal — even for a long weekend — no matter how urgently we might be needed.'

Valerie was particularly unhappy about this because if anyone had to stay behind, it was her. She is responsible for most of the paperwork, typing and correspondence and her absence means the work builds up. She insists that, apart from wanting a share in the fun, her visits are very important because 'there are certain things that only a woman would know about' — presumably the more domestic details. This was the main reason they began to look at computers.

But there were other pressures nearer home as Valerie detailed. 'The most time consuming thing is the accounts, for it was a two or three stage job; but using the computer people pay their deposit and we can immediately send them the confirmation, invoice and all the details of their holiday on one letter.

'Well', she said, 'it should be more ▶

'I would rather have spent the extra cash on a specially-written program,' she said



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Number of children   Gwent                  hild      Mrs Bowens           20

Number of infants      70.00Flight cost/infant       Cardiff    Subtotal   1 June 82
 irport taxes/person excluding infants                          Subtotal   2245
Number insured                Insurance rate/person  Cerro apt 2 wks
Number of transfers   240.00Transfers cost/person     40        Subtotal     .00
                                                             Car rental      .00
                                                                 Extras     .00

Special requests   03                                             Total    04
Access       .00                                                Deposit     .00
                                                             Surcharges      .00
                                                                Balance      .00
   .00
Date of booking   00




                                                            ALGARVE HOLIDAYS
                                                         161 LECKHAMPTON ROAD
                                                              CHELTENHAM
                                                            GLOUCESTERSHIRE
           Glasbury House                                      GL53 OAD
           Ramsden St
           Glasbury House
           Ramsden St

Dear Rhymney

    Thank you for your booking and deposit of Glasbury House          ooking is
confirmed as detailed below.

    The balance is due eight weeks before your departure date, any surcharges or
extras will be advised seperately, should they occur.

    Full arrival instructions will be sent after payment of outstanding balance.
Airline tickets will be despatched about ten days before your holiday.

                              Yours sincerely,



                                    INVOICE

Departure airport  Ramsden St
Date of dept  Rhymney                  me  Gwent                Flight no  Mrs Bowen
s           on & duration    70.00
Accommodation rental                                                       Glasbury
House                   Ramsden St                    Rhymney               17
Number of children   Gwent                  hild      Mrs Bowens            20
Number of infants      70.00Flight cost/infant        Cardiff    Subtotal   1 June 82
 irport taxes/person excluding infants                           Subtotal   2245
Number insured                Insurance rate/person   Cerro apt 2 wks
Number of transfers   240.00Transfers cost/person      40        Subtotal     .00
                                                              Car rental      .00
Special requests   03                                             Extras     .00
Access       .00                                                   Total    04
                                                                 Deposit     .00
                                                              Surcharges      .00
   .00                                                           Balance      .00
Date of booking   00
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Print-out gives departure airport as Ramsden St, flight number as Mrs Bowen

▶ practical to get three lots of information back...'

But theory and reality were unfortunately estranged in the Maclaine's particular micro venture. A Commodore microcomputer sits in their office but it is inactive.

It is surprising that after much precaution and research Algarve Holidays still fell foul of a disappointing investment. 'First we went through a number of magazines. Then we went to a few exhibitions in Birmingham and London. We even had demos in the house.'

Valerie recalled being particularly taken by the Sharp MK80B. 'I wanted this one. The main attraction was its 10-function keys, and the screen was crystal clear.' But there was no software. 'It was a great disappointment.' She admits that given a second chance she would choose the Sharp 'because the one we have has taken so much of our time and still the program is not right.'

At the end of November last year the Maclaines finally settled for a Commodore CBM, Model 8032. For £2,500 Computer Shack of Cheltenham supplied them with an inclusive package: a combined VDU and keyboard, dual floppy disk drives and an Epson MX80F/T printer.

The Maclaines have had the machine for barely six months and in Anthony's words: 'So far it's been a disaster.' They are disillusioned. Business is growing all the time, but their 'office hand' is not pulling its weight!

Anthony doesn't blame the retailer: 'Basically, Computer Shack has been very good and very helpful with problems. I think one of the main problems is that the program producers don't always give adequate information on what the program will do and how it does it.'

Algarve Holidays' main grievance is with Compsoft who supplied the DMS database management system* program for their business: 'Originally, when we went into this game — and I repeat the word "game",' stressed Anthony, 'they told us it could keep 450 records and would be able to cope with a two-page letter; that's the reason we bought the program. But when we introduced our letter, the storage space was limited to 200 records. So, as soon as we wanted to use the facilities in the program, we were in trouble.' The Maclaines are particularly perplexed because this program was recommended by Commodore.

Anthony explained the format of the letter they were aiming for. 'When we receive a deposit, the computer writes a letter confirming the booking and also a detailed invoice of the amount falling due eight weeks before departure.' This cuts down paper work as well as ensuring that the client's details are correct well before the departure date.

When the Maclaines discovered that the system could not produce the required letter, they asked Compsoft to modify it. At first the company refused to do this unless the Maclaines handed over another £40. After a strongly-worded letter from Algarve Holidays, it agreed to modify the system for free, but what the Maclaines eventually got was a three-page letter.

Although Valerie can see some of the advantages of this development, it was not what they asked for and had certain drawbacks: 'For instance, we have had to adapt our original information and omit certain essential details from the invoice.'

The modification involved changing the 40-40 drives for 80-50 alternatives and it was hoped this would resolve their problems. But within hours of receiving the modified system, an intermittent fault manifested itself. The Maclaines contacted Computer Shack who came out immediately. Computer Shack eventually removed the whole circuit and 'banged it back at Commodore'. Subsequently they learnt that the disk drives were blameless and that it was in fact a program fault. At one point the program was mixing up all the 'fields' used to categorise all the individual details for each booking (see the sample print out) and this, though initially amusing, was a nightmare. The disk was duly returned to Compsoft.

Since November the Maclaine's microcomputer has been inactive, and the software has been returned five or six times.

'Reading the program advert originally, it sounded as though it was just what we were looking for, really promising, but since then it's just been one problem after another,' Valerie recalled. Last time it went wrong she was very angry and was tempted to ask if another system could be contemplated — she had her original favourite in mind, the Sharp which was lacking in software. 'After all the trouble we've had I would rather have spent the extra money on ▶

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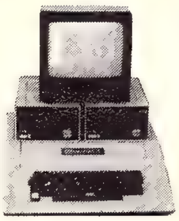

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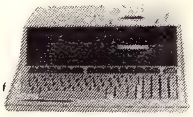

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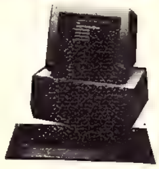

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The wall chart planning system is more convenient than a computerised one would be

▶ a specially-written program.'

Despite all the traumas, Valerie has nothing but praise for Computer Shack: 'They have been marvellous, a tremendous help,' and its frequent assistance has not cost them a penny.

Algarve Holidays is caught in a very common and perplexing situation: it is the meat in a retailer/supplier sandwich. Confused about where the blame lies and whose responsibility it is, the user does not have enough expertise of his own to resolve the situation. So the arguments go on between the hardware's supplier and retailer, and the software's supplier and retailer — and the Maclaines wait and wait.

'The main problem is that the DMS software hasn't really produced anything. Basically, it's a good program,' Anthony said generously. 'It does quite a lot, but there are a number of bugs and shortcomings which weren't adequately explained either to ourselves or Computer Shack.' Despite his faith in the program, Anthony concedes that he doesn't find it easy to use. This is the old problem of 'user friendliness'. 'It assumes that you know what to do next and what buttons to press.'

The manual doesn't help much. 'It's very difficult to follow. Well, you see for yourself. After playing around for four or five months you can *almost* follow what it is saying.' They hope that when DMS is working, they will be able to use its select function to, for instance, find all the clients between two dates and give them a print-out. They can telex this information to their Portuguese agents and provide them with such details as the size of the party; the arrival time; the number to be transferred to hotels and those to be supplied with hired cars.

The program should be able to categorise each client according to 40 different 'fields'. These include arrival date, departure date, departure point, arrival point, number of infants, number of adults, car rental required, insurance requirements, flight number and so on. At the end of the year, a variety of statistics could then be extracted, for instance the number of people who have flown out of Gatwick, or who have stayed in any particular villa.

One part of their office routine the Maclaines have not computerised is the holiday planner wall chart. 'It is quicker to work off the chart for selection because it gives us an overall view.' The old system is very convenient. For example when one of their clients wanted to book a two-week villa holiday, the booking was problematic because the only available villa was vacant for a maximum of 13 days. 'However, with the planner I could tell at a glance that we had a pair of semi-detached properties free, so I was able to accommodate the client in these for the first day,' said Anthony.

The Maclaines have encountered over-computerisation in their dealings with flight agents. 'Often they cannot tell us whether particular flight options are available, simply because it is not on the screen. Other agents with a manual system can tell us immediately. From our point of view it is better to pencil in these flight options and then write the confirmations in ink.' He feels that if the Commodore did everything they would rely on it too much.

Would they write their own programs? 'No, we just wouldn't have the time. We would have been keen when we first got it.' In fact Valerie did contemplate a course in the early stages of the Commodore's shaky history, but

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BRIAN DONNAN

Frustrated Commodore owner Anthony Maclaine: 'So far it's been a disaster'

The printer is the best part

life is so chaotic at the moment that she cannot afford the time.

In Anthony's opinion, too many people are involved in programming and they are not businesslike enough — both in their professional conduct and their knowledge of business applications. 'Computer programmers have one interest and they tend to know about nothing else except that.'

Algarve Holidays' Commodore is quite slow and does have a slight jitter on the screen.

'The Epson printer,' said Anthony, 'is the best part of the system. We have had no problems with it at all, and it is reasonably quiet and small.'

They don't think they would buy the same microcomputer again — a point Valerie Maclaine was certainly adamant about.

What has it done for them so far? 'Given me a few more grey hairs,' said Anthony Maclaine. ☐

Advice for buyers

The Maclaines have a few constructive ideas for anyone who might be contemplating a similar adventure.

Firstly 'it would be nice to have the thing in hand for a week to try it out and see what it can do'. If a potential user has such an opportunity he should certainly follow it through.

Secondly, 'most important, deal with a local company, either on recommendation or one that will give you good after sales assistance.'

Thirdly, programs are the main bugbear.

Finally, deal with someone who has experience with the program you are thinking of using.

* **A database system** controls a central file of data which users can call on for different purposes

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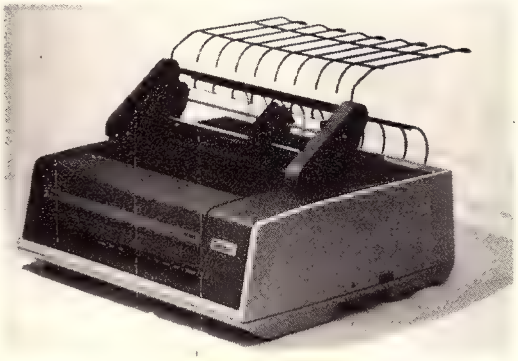

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Micro users in Northern Ireland don't have to feel neglected. Fiona Newman has been investigating

Queens University Belfast will be holding a conference and exhibition for business people interested in micros

Hunting around pays off in Ulster

If there were such things as Irish computer jokes they would probably give the impression of lack of understanding and awareness: in Northern Ireland this is very far from the truth.

At first glance there seems to be very little help for the businessman trying to find his way in the microcomputer market, but if you are prepared to hunt around a certain amount is available. Things are going on in Northern Ireland, but communication between those offering help and those who need it is lacking.

David Gill is a laboratory supervisor at Queens University in Belfast. As a microcomputer user he is disillusioned with the facilities available. 'Things are very sluggish here. Things could be done if only there was someone who would do it,' he says. Gill feels that people are buying microcomputers because it is the 'in thing', but without really appreciating the difficulties involved. He has attended two courses on the use of microcomputers but came away feeling he had learnt very little.

Gill is also unimpressed with Information Technology 1982 in Northern Ireland. 'I went along to an exhibition where IT '82 had a stand and I can only describe it as pathetic. The stand consisted of three piles of leaflets and when I asked the representative for some information he just gave me a copy of each leaflet,' says Gill.

This view of IT '82 is echoed by Des Blair, general manager with Management Development Services, a Belfast consultancy. Although he is optimistic for IT '82 in the long term he feels that it has hardly got off the ground yet, and is perhaps attempting to cover too wide a field. Management Development Services offers several courses on the general appreciation of microcomputers and their impact in industry, and also runs bespoke courses for individual companies.

Blair feels, however, that Northern Ireland is the same as the rest of the UK. 'Using a microcomputer should arise from a need, not just from merely wanting a computer. Its usefulness lies in helping businessmen to see a quick return for their money, in say two and a half years. If a businessman doesn't want to do that he should forget it,' he says.

The IT '82 officers in Belfast are well aware of the problems of promoting greater awareness of microcomputers. They do not feel that IT '82 is reaching the general public as well as they hoped, and cannot use across-the-board advertising due to a limited budget. There is also a public holiday in July so few events have been planned from that time until November.

There are two events in late June, however. From June 21-25 there will be a conference and exhibition combined dealing with topics of interest to businessmen. Many microcomputers will be on display, and the conference will deal with a variety of topics including the use of microcomputers in business, and discuss various case studies. From June 23-24 an annual conference at Queens University with IT '82 representation will be held, where the impact of new technology will be discussed. But communication problems become even more apparent when viewed from the course organisers' point of view.

Last year the Department of Commerce, acting as the agent in Northern Ireland for the Department of Industry, invited representatives from the Institute of Electrical Engineers to give seminars at Queens University. This was part of a scheme to make companies aware of the availability of computers and of grants of up to £3,000 to help meet the cost of engaging a computer consultant.

Though all companies, small and ▶

Poor communications are making it hard to find good courses and seminars

▶ large, were invited, response was so poor the seminar had to be cut from two days to one. The Department of Commerce was unable to account for the lack of enthusiasm among local businessmen. The extent of the recession in the province, however, is a major factor.

The Small Business Agency, known as the Local Enterprise Development Unit, deals with small companies of up to 50 people in the manufacturing and servicing industry. It is concerned to promote the use of microcomputers, and runs seminars two nights a week in different areas, giving general advice related to the business in question. Its administration is divided into four areas, north, south, east and west with offices in each area and it publishes its own paper, *Local Enterprise News*, so people can seek help in their own area.

It is possible to find several useful micro courses. Of all of these perhaps the most interesting looking one is from Queens University in Belfast. It runs a two-and-a-half day course, 'Introduction to microcomputers and Basic' for people with no previous experience, and offers the opportunity to gain hands-on experience on Apple, Commodore and Tandy machines. The course will run each month from September for £60.

The *Belfast Telegraph* is marketing courses run by a consultancy called Bee-Com aimed at businessmen who are thinking of using a microcomputer. These are: 'Microcomputers and how to run them', 'Managing the small computer', 'Computing concepts for managers' and 'Computer appreciation for non-computer staff'. These will all be held in Belfast in September and 'Computer appreciation for non-computer staff' will also be held in July.

For business people deciding whether to use a microcomputer and what to do when they have one, help is certainly available. The trick is knowing where to look, and so it is important that communications improve, since not everyone has the time for careful research. In an industry where there is so much uncertainty and confusion, as Des Blair says, 'We are in danger of having a solution looking for a problem.' ☐

Belfast Telegraph, Belfast 21242
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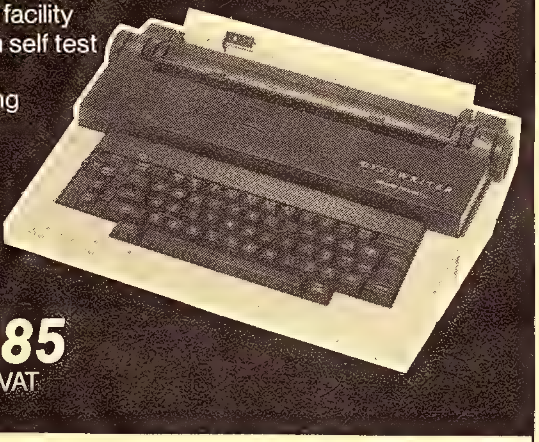

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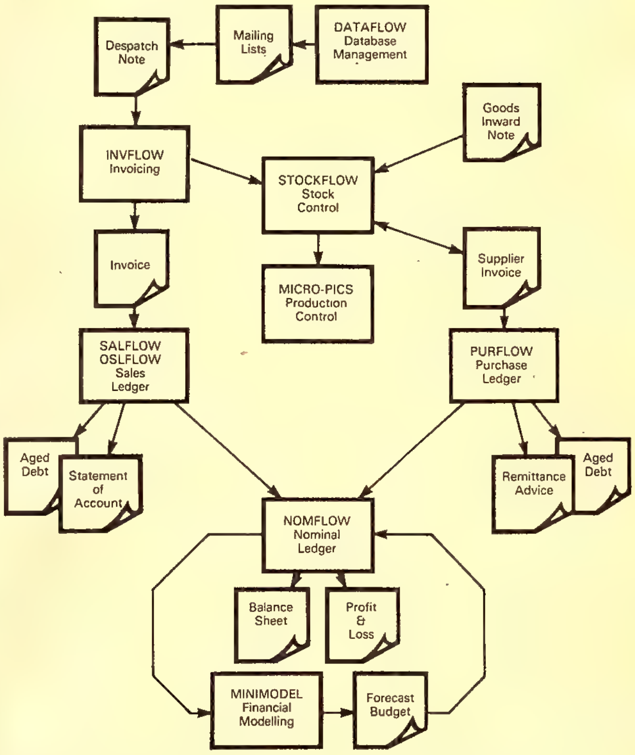
DATAFLOW Database Management
Mailing Lists
Despatch Note
Goods Inward Note
INVFLOW Invoicing
STOCKFLOW Stock Control
Invoice
MICRO-PICS Production Control
Supplier Invoice
SALFLOW OSLFLOW Sales Ledger
PURFLOW Purchase Ledger
Aged Debt
Statement of Account
Remittance Advice
Aged Debt
NOMFLOW Nominal Ledger
Balance Sheet
Profit & Loss
MINIMODEL Financial Modelling
Forecast Budget

Whether you are a small businessman using micro-computers to help run your business better, or a micro-computer dealer looking for a range of trouble-free application packages to supply with your hardware, you will find that CP/M packages from GREAT NORTHERN are a better way to do business.

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* Moderately prices
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For prices, terms & full details contact ....

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Computer Services Limited
16 Town St., Horsforth, Leeds, LS18 4RJ
Tel (0532) - 589980

Ring Round 1704

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MAIN MENU

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3. PURCHASE INVOICES
4. STOCK CONTROL
5. ORDER CONTROL
6. PAYROLL
7. PAYMENTS MADE
8. PAYMENTS RECEIVED
9. CREDITORS
10. DEBTORS
11. SUPPLIER STATEMENTS
12. CUSTOMER STATEMENTS
13. AGENTS STATEMENTS
14. PRINT CUSTOMER INDEX
15. PRINT SUPPLIER INDEX
16. BANK RECONCILIATION
17. PURCHASE LEDGER
18. SALES LEDGER
19. END OF MONTH PROCEDURE
20. VAT STATEMENTS
21. MANAGEMENT FINANCIAL REPORTS
22. PROFIT & LOSS ACCOUNT
23. BALANCE SHEET
24. CAPITAL ASSETS
25. DEPENDING ON VERSION
26. DISK DIRECTORIES
27. ALTER INCORRECT FILE ENTRIES
28. PRINT LEDGER CODES
29. PRINT STOCK LIST
30. FINISH USING 'CFACC'

'CFACC' ACCOUNTS PROGRAMME — COPYRIGHT COMPUTERS FOR ALL LTD

1. The Programme resides totally "in core" leaving BOTH DISKS FREE for files and enabling disks to be changed during use.
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6. Automatic calculations of WAGES and SALARIES. – This section would normally cost £500.00
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    v) AGE OF DEPT ANALYSIS
17. CAPITAL ASSETS STATEMENT on demand.
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19 ENVELOPES or ADDRESS labels can be printed from Address Files.
20. Full Random Access to any record in any file — No Limit on Record Lengths.
21. Ledgers are automatically updated after every transaction.
22. All sections of the Programme and files are fully integrated.
23. Some Programmes on the market claim to be easy to use with no need for a manual (BUT TO THE LAYMAN THEY SIMPLY ARE NOT). "CFACC" really is USER ORIENTATED — WE ARE PREPARED TO LET YOU PROVE THIS FOR YOURSELF. MONEY REFUNDED IN FULL IF YOU CAN SHOW US A BETTER MICROCOMPUTER ACCOUNTS PROGRAMME WITHIN 7 DAYS OF USE.
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25. Fully tested and debugged.
26. All Equipment is fully tested by us prior to installation — Normal Guarantees on all Equipment Service Contracts available — Finance and Leasing can be arranged.
27. DELIVERY and INSTALLATION FREE within UK.
28. We have examples of other Accounts Programmes on the market which you are welcome to try, and compare them with "CFACC".
29. PETS, TANDY'S & APPLES taken in part exchange for complete systems.
30. Automatic Loading – You simply insert the Disk.
31. "CFACC" will run on any CP/M Micro with a true 64K.
32. Special versions available with 'Back Order Files', Job cost Files', Raw Finished Stock Files for manufacturers, Client Account Files with time allocation for Service Industries.
33. We also stock other Software such as Calcstar, Datastar, various languages, Supersort etc.

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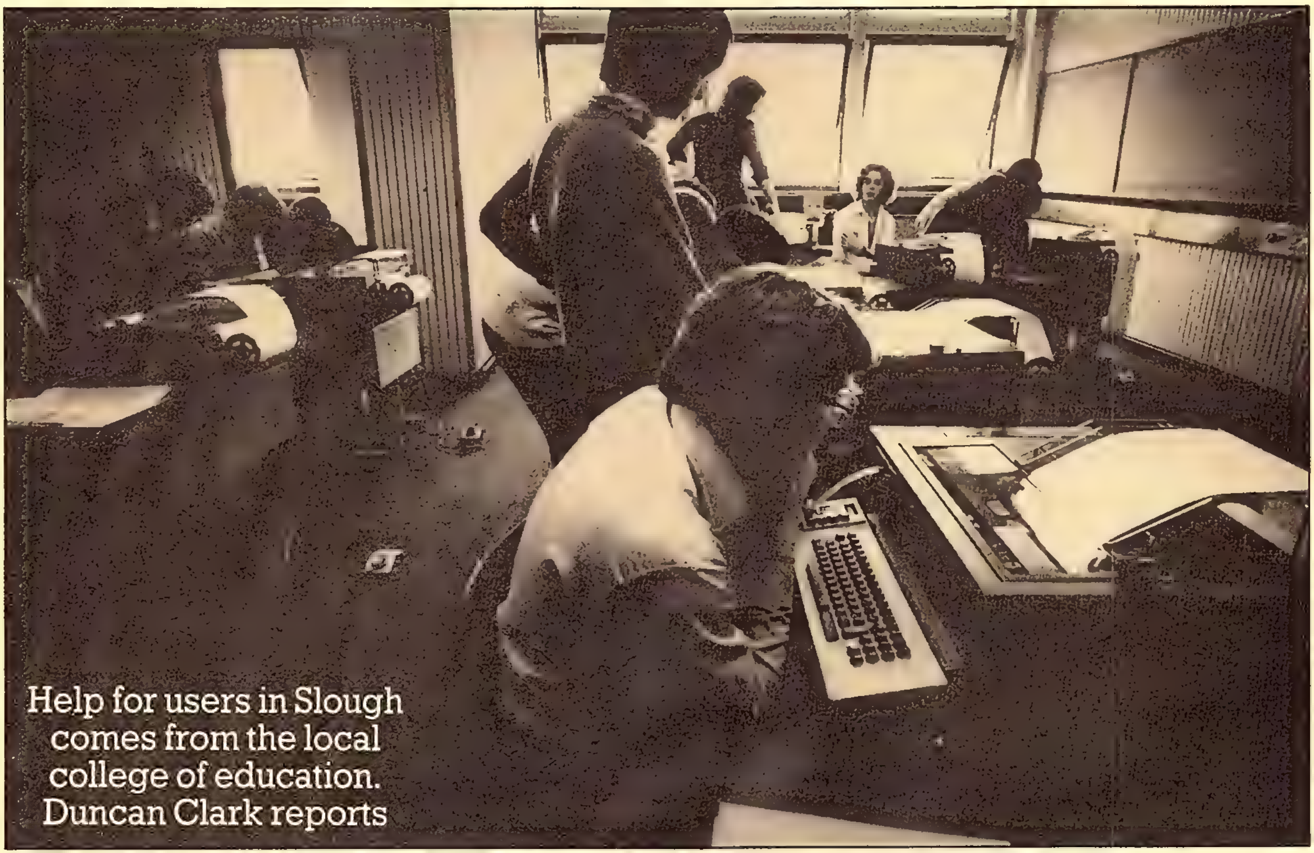
Computers For All Ltd, Stratford on Avon (0789) 840064

Ring For Our Information Folder Which will tell you the questions to ask the Others.



Help for users in Slough comes from the local college of education. Duncan Clark reports

Some introductory training goes a long way to give business people more realistic expectations of their micro

Goldmine awaiting users in Slough

If you're a first-time micro buyer in sunny Slough, it would pay you to look beyond the jazzy front window displays of the high street micro shops. Many of the dealers you find in the high street will offer help – but by digging a bit further you may find a goldmine in the shape of the flourishing Microsystems Centre at the local college of higher education.

The head of the Microsystems Centre, Alan Curry said: 'Buying a micro is like buying a car; what would you say to a person who firstly didn't know how to drive a car and secondly, didn't know what cars were on the market? I'd say he or she needed to take a short course but, although we can advise on details and capability, we can't make the value judgements for the person.'

Despite all the information and support services that are available from manufacturers and suppliers these days, buying a micro is not child's play. It *is* possible to end up with a relatively trouble-free system, but the chances are that unless your needs are straightforward, you know exactly what you want *and* you know what is available, the path to buying the system you want will be fraught with difficulties.

In the maze of advertising how can the non-specialist, the business person, hope to cope? Do the advertisements oversimplify and exaggerate the usefulness of micros in the interests of a quick sale? 'The qualities and advantages are played up while the drawbacks are simply not mentioned,' says Sandy Saunderson, manager of KGB Micros, which is reckoned to be the largest UK dealer of the US Superbrain from Intertec Data Systems, and is now also supplying the British LSI's System M-Three.

He criticises the advertisements for raising expectations too high by appearing to offer immediate solutions that simply underestimate the job of incorporating a micro into a business set-up. 'Customers have been led to expect wonders and are surprised when the process takes longer than they had anticipated.'

Saunderson puts his clients into three categories: 'About half find they have a use for the micro for financial reasons and have clear-cut software needs, such as accounting or standard word processing. These people are not necessarily specialists but should manage.

'The second group has those who are well-informed and genuinely interested in computers; they may run into problems because of unusual requirements but should not cause the retailer too many headaches.

'The third type is fortunately a minority but is by far the most difficult simply because they have no idea what computers can and cannot do, besides often not knowing what they actually want.'

He feels that buyers need a degree of initial interest in computer technology, and urges them to read relevant magazines and visit exhibitions before going out to buy.

Saunderson's preferred method of introductory training involves sending a demonstration unit to the business premises, along with a brief explanation. The unit is then left for the employees and managers to play and experiment with: 'This gives a more confident, open attitude towards the technology and ▶

Advertisements gloss over the problems of incorporating a micro in a business

▶ helps to take the mystery out of it.'

When they have got used to the machine *by themselves*, the dealer then comes back to answer any questions and give further instruction. This approach allows future users to take full advantage of the expert's help.

'If I don't think my system is suitable or that there are going to be a lot of problems I tell my customers,' says Saunderson. 'We do work on a cash and carry basis and it is largely a matter of getting what you pay for.'

The Datastar software package has had some bugs and one of Saunderson's clients said he'd found it too slow. But no software has been returned in the 20 months that KGB has been in business, and despite selling over 550 Superbrains only one customer has had to send back hardware. Here, problems had arisen because of 'serious overloading' when four different programs had been swapped between four makes of machine; since this was contrary to manual instructions it wasn't strange that disk errors began to occur.

In response to the charge, laid by a former customer, that computer sales were dominated by technicians with no experience of business Saunderson countered by saying his background was in the engineering business not computers. He did, however, agree that most suppliers came from the computer side and said that not enough came from the other.

To whom can you turn if your supplier won't help you? The high street parades a number of micro outlets which may advise but these, being limited to specific companies, aren't going to go out of their way to 'sell' other people's products. Though these range from Commodore's main dealer in the region at 'The Slough Micro Shop', through to Xerox, Texas Instruments and Tandy, none of these will really help the hesitant buyer find the best system for his particular need if they do not stock it.

> **'About half my clients find that they have clear-cut software needs such as accounting'**

The most obvious course of action, one which suppliers themselves often suggest, is a visit to the new Microsystems Centre at the local College of Higher Education. Says Alan Curry, head of the Centre: 'At least you know we're independent with no axe to grind. We make use of a wide variety of models and point out the disadvantages and advantages where possible.'

Over the last year the College has raised the number of micros to 23 including Apples, Pets, Vics, Acorns and RML 380Zs. 'We're appealing to both the specialist and the non-specialist,' says Curry. 'Those who want to learn how to program *and* the person who thinks he needs a micro but just wants to run ready-made software packages.'

Just getting started too is the Micro Support Centre at Ascot, offering beginners' courses in word processing and microcomputers. Although its advertisements in the local press claimed that courses were starting in Reading, Bracknell and Slough, these haven't materialised. But it now says that permanent centres will be set up in the next few months.

The director, Michael Gould, says: 'Each member of our staff is an experi-

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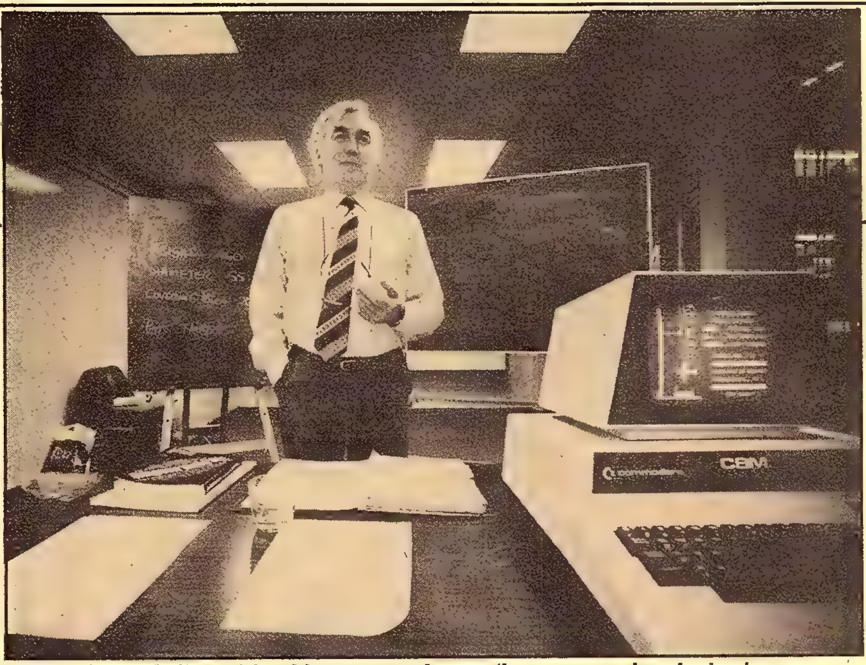

Well-informed clients 'should not cause the retailer too many headaches'

enced business manager and places great emphasis on the practical content throughout all course work... with an approach that simplifies any necessary computer jargon.' The Micro Support Centre offers either five separate two-hour units or an intensive one-day course on 'the very latest equipment' from £69.

But for value for money the short courses now being introduced at the College are hard to beat. 'Our courses are very cheap compared with those currently available in industry.' Not surprising then that there have been well over twice the estimated number of subscriptions for the evening courses in the Basic language for micros, which started in September and December of last year.

Of special interest to the new-comer would also be the 'Introduction to the electronic office' course, six Monday evenings for £30.

There is also a 'Microcomputer workshop' for two hours every Thursday in term time for £25.

Aside from these are the day-time short courses, only running since January this year, which are aimed at business users, managers and data processing staff.

These are one to two day courses/seminars with titles like 'Microcomputers in management services', 'Maintenance control on a microcomputer' and 'Financial modelling on a microcomputer', all at £60 a day plus lunch and literature.

The only user group in Slough at present is the national ICPUG (Independent Commodore Pet User Group) which produces 'Europe's first independent magazine for Pet users' edited by Ron Greene in Farnborough.

In the Thames valley a few years ago an initial attempt to set up a user group failed to get off the ground, but now a Pet and Vic user group is being started by Brian Jones who is on the Micro Support Centre's staff and will be using college premises. ☐

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Ring Round 1709

COMPANY	HARDWARE	SOFTWARE
Cleveland		
Applestop Ltd 17 Fulford Grove New Marske Redcar	Apple	GA WP M C E EA S P
Briers Computer Services 1 King Edward Square Middlesbrough	Video Genie Texas Instruments	M Chemist Dentist Hobbyist
Cleveland Business Systems Ltd 3 Kensington Road Middlesbrough	North Star Horizon Digico	GA S Carpet retail Social clubs
Customised Electronics Ltd 155 Marton Road Middlesbrough	Acorn Transam British Micro Systems	GA WP OA C E S P
Elfton Ltd Advance Chambers Surtees Street Hartlepool	Apple Commodore Memory Texas Instruments	GA WP E EA S N P Process control
General Northern Microcomputers 46 Middle Street Blackhall Hartlepool	Video Genie	GA WP OA Hobbyist
Hunting Business Systems Brough House Mitchell Avenue Thorn Bay	Sharp Superbrain	GA WP N P Hotels Job costing
Intex Datalog Ltd Eaglescliffe Industrial Estate Eaglescliffe	Commodore Sharp	GA WP OA M C EA S P
AW Medhurst and Co Ltd Sotherby Road Middlesbrough	Alphatronic	WP EA S Acounts Stock control
Micro-Technic Computers 208 Grange Road Middlesbrough	Apple	☆
Tandy 118-120 Linthorpe Road Middlesbrough	Tandy	GA WP ED P Budget management Disk course Filing Games Languages Inventory management Work study
Tandy 182 Middleton Grange Shopping Centre Hartlepool	Tandy	Games (colour computer) GA ED P Budget management Disk course Games Languages Work study
Teesdale and Co Ltd Unit 3 Stockton Street Middlesbrough	Alphatronic	GA EA P
Cornwall		
AC Systems 6 Cathedral Lane Truro	Commodore	GA WP EA P Service stations
Benchmark Computer Systems 7-8 Aylmer Square St Austell	Comart Cromemco North Star Horizon	GA WP OA E P Time ledger Incomplete records
Brewer and Bunney (ECS) Ltd 70 Union Street Camborne	Tandy	GA WP OA C E P
Diskwise Ltd 25 Fore Street Callington	Adler Apple Video Genie	☆ Hire companies Hotels TV rental
SJ Harris and Hall Ltd Calenick Street Truro	Apple	GA WP P Insurance
Liveport Data Products The Ivory Works St Ives	Exidy	GA WP S P N
Jeffrey Martin Computer Services Ltd 15 Lemon Street Truro	Commodore	Unspecified

General Accounting	GA	Construction Trade	C	Newsagents	N
Word Processing	WP	Engineering	E	Payroll Application	P
General Office Automation	OA	Estate Agents	EA	All the above	☆
Medical	M	Solicitors	S	Education	ED
				Financial Planning	FP

COMPANY	HARDWARE	SOFTWARE
South West Office Equipment Pednan and Drea Redruth	Sharp Rank Xerox	GA Hotel
DJ Taylor and Co 'Amberly' Monument Road Helston	Sord	GA WP OA P Holiday letting

Cumbria

COMPANY	HARDWARE	SOFTWARE
Barrow Office Equipment Oxford Chambers Abbey Road Barrow-in-Furness *and at* Tangier Buildings Tangier Street Whitehaven	Alphatronic	WP EA S P Accounts
UD and M Dunglinson Brunstock Carlisle	Commodore	GA WP S
Furness Computer Services Ltd 87 Dalton Lane Barrow-in-Furness	Apple	☆
Furness Electronics Furness House The Mall Barrow-in-Furness	Sharp Tandy TRS	GA WP C E EA P Graphics Hobbyists
Lakeland Computer Services Elterwater Ambleside	Apple	Unspecified
Radex Lakeland (Kendal Computer Centre) Linden House 52 Kirkland Kendal	Apple Video Genie	GA WP OA ED

Derbyshire

COMPANY	HARDWARE	SOFTWARE
Davidson Richards Ltd 14 Duffield Road Derby	Commodore Wilcox	GA WP Financial modelling Garment industry Insurance
Datron Micro Centre Duckworth Square Derby	Acorn Apple Commodore Cromemco Sharp Texas Instruments	GA WP FP Database management Financial modelling
Donnington Computers 38A High Street Castle Donnington Derby	Apple	☆
Evets Computers Ltd 123-125 Green Lane Derby	LSI Computers Motorola Superbrain Systime Televideo	GA WP OA C E EA S P Advertising agencies
Impact Micro Computer Services Ltd The Grove Central Road Alfreton	Apple	GA EA S Insurance Stock control
Malison Electronics Ltd 31 Charnwood Street Derby	Sharp	☆
Michael Ludlum Associates King Street Bakewell	ADDS Apple Systime	GA WP OA EA P
Tandy 33 Victoria Street Derby	Tandy	GA ED P Budget Management Disk course Games Languages Work study Games (colour computer)

Devon

COMPANY	HARDWARE	SOFTWARE
AC Systems 75 Mutley Plain Plymouth *and at* 53 Magdalen Road Exeter	Commodore	GA WP EA P Service stations All Commodore
BCG Computers Systems Ltd 332-334 Torquay Road Paignton	Sharp	GA WP P All sharp
Commonsense Computing Ltd PO Box 7 Bideford	Columbia Data Systems Data General Extel Superbrain Televideo	WP OA M E C S P Account Agricultural Dental Insurance
Crystal Electronics 40 Magdalen Road Torquay	Apple Durango Lucas Logic Nascom Sharp	WP M E Scientific and Technical
Devon Computers 81 Upper Manor Road Paignton	ACT Apple Commodore	☆

COMPANY	HARDWARE	SOFTWARE
Diskwise Ltd Deptford Place Northill Plymouth	Adler Apple Commodore Olympia Video Genie	GA WP P Finance Games Hotels TV rental
DTR Micro Electronics Ltd Torrington Street Bideford	Sord	GA WP P
Emtek 40 South Furzeham Road Brixham	Superbrain	Accounts Business Financial modelling
Exeter Office Machines 210 Topsham Road Exeter	Alphatronic	Unspecified
Firide Ltd Way Park Widecombe in Manor Newton Abbot	Apple Microstar	GA WP OA C EA S P Farmers
Ham and Sewell Ltd Armada House 172 Armada Way Plymouth	Sord	None
Robin Hills (Systems) Ltd 48-49 High Street Exeter	Apple	WP E Data logging Industrial control
In-Store Video Ltd 17 Fore Street Silverton Exeter	Apple	GA WP O A Graphics
JAD Integrated Services 21 Market Avenue Plymouth	Acorn Apple Commodore North Star Horizon Texas Instruments	GA WP C E EA P
Keel Data Systems Crossways Herbert Road Salcombe	Apple Commodore	GA WP OA M E EA P Hotel
Nicomtech Ltd 5 Windsor Villas Lockyer Street Plymouth	Apple Interactive Data Systems Superbrain	GA WP OA E EA P ED
Plymouth Computers 83 Exeter Street Plymouth	Sharp Exidy	GA WP C E S P Stock control
Peter Scott (Electronics) Ltd 18 Bartholemew Street Exeter	Apple Sharp Texas Instruments	GA WP OA P ED
Small Business Computer Group 37 Berryhead Road Brixham *and at* 1 Piermont Place Dawlish	Apple Durango Olympia	GA WP OA C E EA S P
Tandy 548 Christchurch Road Boscombe	Tandy	GA P ED Games (colour computer) Budget management Disk course Games Languages Work study
Tandy 44 The Parade Mangolia Centre Exmouth	Tandy	As above list
Tandy 13 Paris Street Exeter	Tandy	As above list
Tandy 35 Hyde Road Paignton	Tandy	As above list
Tandy 134 Union Street Torquay	Tandy	As above list
Tandy 64 Royal Parade Plymouth	Tandy	GA WP P ED Budget management Disk course Filing Games Inventory management Languages Work study
Teffont Business Systems Ltd 48-49 High Street Exeter	Millbank Nippon Electric	WP OA C E EA S P Accounts Data retrieval Financial Insurance Stock control Telecommunications
Teltec Business School St Brigid's Exmouth		GA WP OA C E P Energy Analysis
West Devon Electronics 15 Station Road Horrabridge Yelverton	Video Genie	Games

COMPANY	HARDWARE	SOFTWARE
Dorset		
Adrian R Tesson Texel Highbrow Holt Wimborne	Apple	GA WP OA M C E EA P Industrial control Industrial data loggers
Blandford Computers Q and J House Ltd Shaftesbury Lane Blandford Forum	Tandy Video Genie	OA EA C Bakeries Hotels
Bridgewick Services Ltd 12 Christchurch Road Bournemouth	Cado Digico NDS Triton	GA WP MS Carpet wholesalers Insurance Management information Personnel Oil and fuel distributor Time and fees
Deverill Computer Services Ltd Poole Office Kingland Chambers Kingland Crescent Poole	Apple	Unspecified
Infospeed 353 Ashley Road Poole	LSI Computers	GA WP E A C Database
Parkstone Electrics 18 Station Road Lower Parkstone Poole	Video Genie Nascom	General business Hobbyist
South Coast Business Machines South Coast House Wimborne Road Ferndown Wimborne	Commodore Hewlett Packard Sharp Systime	GA WP EA S P
Spink and Beeching (Sales) Ltd 5-6 Lansdowne House Christchurch Road Bournemouth	Alphatronic	None
Stage One Computers 300 Ashley Road Parkstone Poole	Commodore	☆ Insurance
Talbot Offset (Computer Division) 61 Heathwood Road Talbot Park Bournemouth	Exidy	GA WP OA M P Typesetting
Tandy 132-134 Commercial Road Bournemouth	Tandy	Games (Colour computer) GA P ED Budget management Disk course Games Languages Work study
Tandy 86 High Street Poole	Tandy	As above list
Vector Data Systems Ltd Newbury Court Gillingham	Southwest Technical Products	GA P Costing Micromodeller
Durham		
Aughton Micro Systems Ltd 3 Davy Drive North West Industrial Estate Peterlee	ACT Apple Commodore Cromemco Digital Equipment Corporation	Unspecified
R Berriman 31-32 Market Street Ferryhill	Apple	GA
Knowledge Ltd 15 North Burns Chester-Le-Street Durham	Apple Sirius	GA M S P Stock control
Neecos (D P) Ltd 81 Bondgate Darlington	Sharp	☆ Amusement arcade management
Tandy 15-16 Priestgate Darlington	Tandy	Games (colour computer) GA ED P Budget management Disk course Games Languages Work study

General Accounting	GA	Construction Trade	C	Newsagents	N
Word Processing	WP	Engineering	E	Payroll Application	P
General Office Automation	OA	Estate Agents	EA	All the above	☆
Medical	M	Solicitors	S	Education	ED
				Financial Planning	FP

Essex

COMPANY	HARDWARE	SOFTWARE
ACM Executive Services 3 Valletta Close Chelmsford	Oscar	GA WP
Action Computer Services Ltd 28 Church Hill Loughton	Apple Altos	GA WP OA E P
Business Solutions Ltd 1 Park Avenue Ilford	Altos Industrial Micro Systems Superbrain Vanguard	GA WP P Database management Financial modelling
Clacton Computer Centre 29-31 Pier Avenue Clacton-on-Sea Essex	Apple Commodore Video Genie	GA EA Hotels Insurance
Compuskill 72 North Street Romford	Apple Atari BASF	GA WP OA P
The Computerist Group Prorole Ltd 642-644 London Road Westcliffe-on-Sea	Apple Atari ITT Sharp	☆
Computer Sales & Software Centre Ltd 190-192 Cranbrook Road Ilford	Commodore Superbrain Video Genie	☆ Graphic
Computers For All 72 North Street Romford	Acorn Atari BBC Commodore	Hobbyist
Conquest Computer Sales Ltd 92 London Road Benfleet	Superbrain	P Invoicing Sales Ledger Stock control Purchase ledger
CSSC Ltd 190-192 Cranbrook Road Ilford	Apple Commodore Superbrain	GA WP P
Culloville Ltd Thornfield Woodhill Road Sandon Chelmsford	Delta Shelton Superbrain Terodec	GA WP OA C E EA S P
Stuart R Dean Ltd 373 Southchurch Road Southend-on-Sea	Commodore Olivetti Rank Xerox	GA WP OA M E EA P Accounts Insurance Job Costing
DDM (Direct Data Marketing) Ltd 22 Warley Hill Brentwood *and at* 10 High Street Southend-on-sea	Apple Commodore Durango Oki Superbrain Televideo	☆
Dair Electronics 33 High Street Halstead	Apple	GA
Dataview Ltd Port Reeves House East Bay Colchester	Altos Commodore	GA WP OA M E S N P
Datum Ltd Church Road Great Yeldham Halstead	Apple Video Genie	GA WP OA M C N P Insurance brokers
Stuart R Dean Ltd 373 Southchurch Road Southend-on-Sea	Commodore	GA Business Stock control
Emprise Ltd 58 East Street Colchester	Acorn Apple Tandy Video Genie	GA WP EA P
Eurotec Consultants Ltd 123 High Street Colchester	Comart Cromemco North Star Horizon	GA WP OA M C E EA S P Insurance brokers Stock brokers
Godfrey's Computer Centre 28-32 East Walk Basildon	Apple Atari Commodore Superbrain	GA
Harrison Computer Services (Eastern) Ltd 19 East Hill Colchester	Rair	WP E EA Accounts Insurance Local authorities Printers costing and estimating Report program generator Schools administration Tour operations Stock control broker

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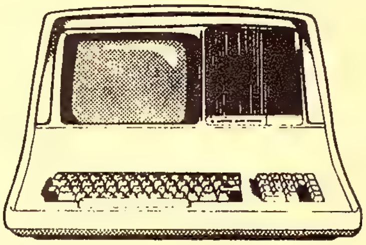

£1395 – our price for the Superbrain – the business micro that has all the vital Industry Standards built in. "Which Computer" called it 'best value for money on the small business systems market', and that was before we took 25% off the price.
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£2995 – complete business system with printer, double capacity disks (Superbrain QD), business BASIC and choice of three PEACHTREE business packages.
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COMPANY	HARDWARE	SOFTWARE
Humac Computer Services Ltd Regarth Southern Chambers 180 South Street Romford	Adler Apple Commodore Microstar	☆
Integer Microsystems Ltd 4th Floor Fairfax House Causton Road Colchester	Alphamicro	GA WP OA C E P Freight forwarders Fuel distribution Insurance brokers
Interface Computer Services Ltd 17 Guithavon Street Witham	Digico Superbrain	GA WP OA P
Kimfield Ltd 5 Broomfield Road Chelmsford	Apple	☆
Meclec Co Ltd 5-6 Towerfield Close Shoeburyness	Apple	GA WP E EA Database Mailing
Micro Measurements Ltd Shirehill Industrial Estate Shirehill Saffron Walden	Apple	Scientific
MRK Computer Systems Ltd 19 The Rows Market Square Harlow	Digico	GA S P
Oak Computer Systems Ltd St George's House Cattawade Manningtree	Altos	WP P Job costing Sales order processing and invoicing Sales purchase (accounts) Stock control
Ranmore Computing Ltd Nelson House 2 Nelson Mews Southend-on-Sea	Apple Superbrain	GA WP OA EA S P Financial publishing Insurance broking Stock control
RHM Computing PO Box 11 Harlow	Rair	WP FP Insurance
Sapphire Systems 19-27 Kents Hill Road Benfleet	Apple Digital Microsystems North Star Horizon Superbrain	GA WP C E P P Banking Fleet administration Financial modelling
Scope (East Anglia) Ltd 25-27 Head Street Halstead	Olympia Sharp	GA OA C E EA S N P Insurance
Selven Ltd Westhouse Chambers 3 Sandpit Road Braintree	Digital	GA WP C E EA P
Shemmings Office Systems 91 Bridge Avenue Upminster	Apple Compucorp	GA WP OA
Tandy 65 Southernhay Basildon	Tandy	Games (colour computer) GA ED P Budget management Disk course
Tandy 7 North Mall Grays	Tandy	As above list
Tandy 4-6 Short Wyre Street Colchester	Tandy	As above list
Tandy 3 Hall Lane Chingford	Tandy	As above list
Tandy 27 Collier Row Road Romford	Tandy	As above list
Tandy Forcal House East Street Barking	Tandy	As above list
Tandy 297 Heathway Dagenham	Tandy	As above list
Wilding Office Equipment 531 High Street Ilford Essex	Sharp	All Sharp packages

J.M.Pickard. MICRO COMPUTER SERVICES

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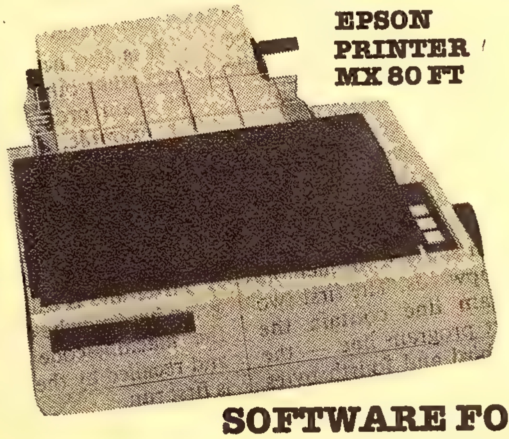
GENIE I SYSTEM 48K 2 disk drives and 12 inch green screen monitor £1060
GENIE II SYSTEM 48K 2 double density drives and green screen monitor £1145
Apple II Europlus 2 disk drives 12 inch green screen £1390



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Gloucester

COMPANY	HARDWARE	SOFTWARE
Atec Computer Services Ltd 6 High Street Blakeney	Superbrain	GA WP E Automatic test equipment
Beaufort Micro Systems Ltd Renslade House Whitfield Street Gloucester	Apple	GA WP C EA N P Stock control
The Business House 37 St Michaels Square Gloucester	Apple Cado	GA WP M E EA S P Dental practice management
B & I Computer Systems Ltd 102 Rowcroft Stroud		GA WP OA M EA S NP
Computer Shack Ltd 14 Pittville Street Cheltenham	Acorn Commodore Millbank Sharp Tandy VideoGenie	☆ FP Database management Mainframe communication Telex communication
Milequip 7A Hare Lane Gloucester	Commodore	GA WP E N P Database management Double glazing Hotel management Project planning
MPL Computers Ltd Kingsditch Lane Cheltenham	Adler Apple Durango Video Genie	GA WP OA P
Omega Electric Ltd Flaxley Mill Flaxley Road Mitcheldean	Rair Superbrain	GA WP OA C E EA S N P Statistics
Scope Office Equipment Ltd 11 Stroud Road Gloucester	Alphatronic	WP Accounts
Tandy 31 Cambray Place Cheltenham	Tandy	GA WP ED P Budget management Disk course Filing Games Inventory management Languages Work study
Beam Business Centre 57 Pitville Street Cheltenham	Apple Lomac Simpelec	Unspecified
Zeta Computers 66 High Street Stonehouse Gloucester	Nascom Video Genie	GA WP

Greater Manchester

COMPANY	HARDWARE	SOFTWARE
ABC Supplies 989 Stockport Road Levenshulme Manchester	Video Genie	OA GA Games
Alphin Computers Ltd Priory Buildings 77 Union Street Oldham	Adds Alphatronic Xerox 820	GA WP EA S P Production planning
B & B (Computers) Ltd 124 Newport Street Bolton	Altos Apple Commodore Osborne Sharp	WP OA Database
Beam Business Centre Centurion House 125 Deansgate Manchester	Apple Lomac Simpelec	Unspecified
Bridgewater Computer Services Ltd Bridgewater House Bright Road Eccles Manchester	Alphatronic LSI Computers Motofax	WP EA Accounts Car dealer Costing
Byteshop Computerland 11 Gateway House Piccadilly Station Approach Manchester	Apple Comart Commodore Cromemco North Star Horizon Osborne Sharp	GA WP OA M C E EA Business applicant production control Financial modelling
Currys Micro Systems Ltd 19 Brown Street Manchester	Apple Acorn Atari Commodore Sharp ITT National Panasonic Pertec	GA WP OA S P

General Accounting	GA	Construction Trade	C	Newsagents	N
Word Processing	WP	Engineering	E	Payroll Application	P
General Office Automation	OA	Estate Agents	EA	All the above	☆
Medical	M	Solicitors	S	Education	ED
				Financial Planning	FP

COMPANY	HARDWARE	SOFTWARE
Cytek (UK) Ltd Sandringham House 9 Warwick Road Old Trafford Manchester	Commodore	GA WP C E EA S P
Digital Design (International) Ltd 6th Floor, Orient House Granby Row Manchester	Digico	GA WP C E EA S P Insurance
Electrovalve Ltd 700 Burnage Lane Burnage Manchester	Gemini Nascom Sharp	None
Gemini Electronics 50 Newton Street Piccadilly Manchester	Atari Commodore	WP P
J A Jarrat and Son Ltd 10 School Lane Didsbury Manchester	Adler Monroe	WP OA EA P Accounts Agriculture
D Kipping Ralli Building Stanley Street Salford	Adds Commodore	GA WP OA S P Incomplete records Stock control
MAP Computer Systems Ltd 111 Union Street Oldham	Digico Dynabyte Superbrain	GA WP C E S N P Incomplete records LPG distribution
Micro-C 19 Brown Street Manchester	Apple Atari Commodore National Panasonic	GA WP P
Microcomputers at Laskys 12-14 St Mary's Gate Market Street Manchester	Apple Atari Hewlett Packard Osborne Sharp	ED Database management Finance Statistics Stock control Surveying
Microcomputer Consultancy 227 Elliot Street Tyldesley Manchester	Apple	☆
Microsoft Structural Control Systems Ltd 18 The Downs Altrincham Greater Manchester	Apple	WP Structural engineering and construction
Newbear 220-222 Stockport Road Cheadle Heath Manchester	Apple North Star Horizon	None
North West Computer Systems Broomfield House Bradley Lane Standish Wigan	Apple Cado Mindata Rank Xerox	GA WP OA E EA S N P
NSC Computer Shops 29 Hanging Ditch Manchester	Acorn Apple BBC Comart Commodore Cromemco North Star Horizon Rair	GA WP M C E EA S P Finance
Professional Data Systems Carne House Markland Hill Bolton	Apple Nippon Electric	GA WP M C E EA P
Remtex Business Equipment 53 Cottenham Lane Cambridge Industrial Area Salford	Alphatronic	GA WP E S P Insurance
Sharp Electronics (UK) Ltd Sharp House Thorp Road Manchester	Sharp	GA WP OA P
Stronach (1982) Ltd 8 Broadlands Road Worsley Manchester	Alphatronic ACT Sirius	GA WP OA C E S P

General Accounting	GA	Construction Trade	C	Newsagents	N
Word Processing	WP	Engineering	E	Payroll Application	P
General Office Automation	OA	Estate Agents	EA	All the above	☆
Medical	M	Solicitors	S	Education	ED
				Financial Planning	FP

COMPANY	HARDWARE	SOFTWARE
Sumlock Electronic Services (Manchester) Ltd 198 Deansgate Manchester	Commodore Sharp	GA WP M C E EA S P
Sumner Jackson and Co Ltd 9 Knowsley Street Manchester	Alphatronic Phillips Toshiba	GA WP EA S
Tandy 90 Raven Way Salford	Tandy	Games (colour computer) GA ED P Budget management Disk course Games Languages Work study
Tandy Unit 71 The Arndale Centre Manchester	Tandy	As above list
Tandy 25 Blackburn Street Radcliffe Manchester	Tandy	As above list
Tandy Arndale Shopping Precinct Chester Road Stretford, Manchester	Tandy	As above list
Tandy The New Chadderton Shopping Centre Middleton Road Manchester	Tandy	As above list
Tandy 14-15 The Bramhall Centre Bramhall Manchester	Tandy	As above list
Tandy Peter House Oxford Street Manchester	Tandy	GA WP ED P Budget management Disk course Filing Games Inventory management Languages Work study
Tandy 30 Market Place Deansgate Manchester	Tandy	As above list
Target Computer Group Ltd Warwick Road Stretford Manchester	Jacquard Memory	Unspecified
WLL Computer Services 150 Claremont Road Salford	Tandy	GA WP OA N Stock control Mail order Order processing

MICRO RETAILER GUIDE

Save every monthly part for a comprehensive guide

MicroDecision's guide to the microcomputer retailers builds in monthly parts into a comprehensive guide to the hardware and software stocked by over a thousand micro dealers the length and breadth of the UK.

Dealers are listed county by county and the counties are included in monthly instalments in alphabetical order.

Of course the micro trade is a phenomenally fast-moving business and many of our details will require updating or checking with the dealer in question. Serious errors or important modifications to our listings will be included in the shape of addenda at the end of one month's listings.

When we have completed the entire guide we will publish a summation of any necessary corrections and modifications.

When these have been taken into account the reader who has saved every monthly installment will possess a unique guide to the micro business in the UK.

Message to Retailers

To enable us to keep the retail directory complete and up-to-date, any computer shops not already included should fill in this form and return it to:

The Editor
MicroDecision
53-55 Frith Street
London W1A

RETAIL DIRECTORY ENTRY

Company Name____________________

Address____________________

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Post code__________Telephone No.__________

Name to contact____________________

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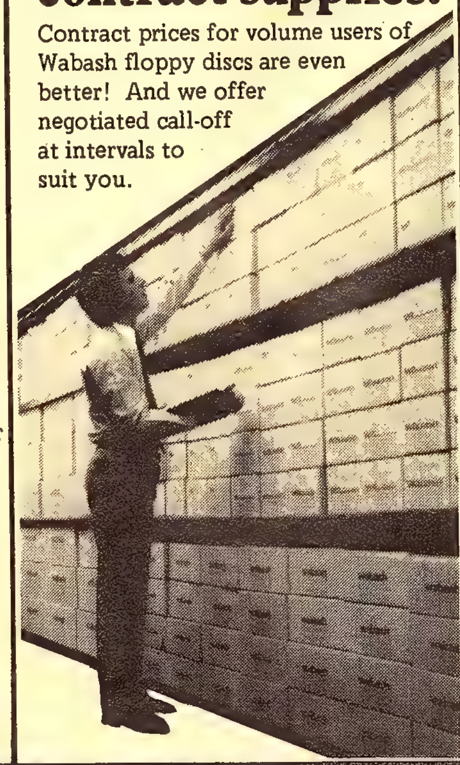

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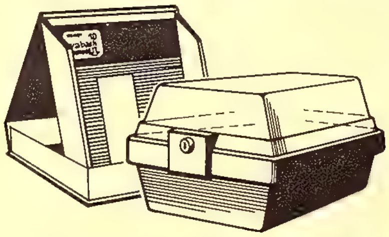

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SPECIAL SOFTWARE

These listings have been compiled from data contributed by over 1,000 microcomputer retailers throughout the UK. The most common applications have been omitted – for example, general accounting, word processing, payroll, general office automation – since these applications are stocked by more than half of the 1,000 dealers. Other popular applications such as estate agency, solicitors, newsagents, engineering, insurance and medical packages, have also been omitted since they appear to be widely available.

In most cases, packages have been listed according to the titles given them by the dealers themselves, and *MicroDecision* cannot vouch for their specific content. Under 'Job Costing', for example, are listed packages specifically designed for builders' job costing routines, as well as packages designed for more general costing activities. Many 'specialist' packages, in fact, may turn out to be fairly standard programs with minimal adjustments. So we advise careful checking of all entries listed.

SPECIALITY	COMPANY
Address System	Jackson Carver Office Machines 17 Beverley Rd Hull N Humberside 0482-28350
Advertising Agency	Logsys (Business Systems) Logsys House 5 Albert Rd Crowthorne Berks 03346/77877
	Evets Computers 123/5 Green Lane Derby
	Core International 92 Wolverhampton Rd Stafford Staffs 0785-42611
	Intergrate Business Systems 32 Sovereign St Leeds
Airline/Flight Plan	Computershop 21 Church St Reigate Surrey 74-22244
	Wego Computers 22A High St Caterham Surrey Caterham 49235
Amusement Arcade Management	Neecos (DP) 81 Bondgate Darlington Co Durham 0325-69540
Applications Generator	Terodec Unit 58 Suttons Park Ave Earley Reading Berks 0734-664345
	Clenlo Computing Systems Crown House 18 Gipsy Hill London SE19 01-653 6028
Appointments	Vixon Computers 49 Grimsby Rd Cleethorpes Lincs 0472-58561
Architects	The Bedford Micro Centre 31-33 Tavistock St Bedford 0234-215015
	Lancaster Computing 374 North Rd Preston Lancs 0772 24003
	Kay-Jay Studios 135 Coles Green Rd London NW2 01-450 6993
	CEM Microcomputer Systems 117 University St Belfast N Ireland 0232-43564/44111
	Keen Computers Minerva House Spaniel Row Nottingham Notts 0602-412777
	AE Chapman Reddal Hill Cradeley Heath Warley W Midlands 0384-66497
	CIC London 4A Russell Hill Rd Purley Surrey 01-668 0683
Auctioneers	Chiltern Microcomputers Finlandia Centre Oxford Rd Gerrards Cross Bucks 0734 581739
	Ronix 176 Lower High St Stourbridge W Midlands 0562-884663
Automatic Test Equipment	Atec Computer Services 6 High St Blakeney Gloucs 059451 523
Average Weights	Aughton Microsystems 29 Woodward Rd Kirby Industrial Estate Kirby Merseyside 051-548 7788
	Vlasak Computer Systems Vlasak House Stuart Rd High Wycombe Bucks 0494 448633
Bacon Wholesalers	Jennings Computer Services 55-57 Fagley Rd Bradford W Yorks
Bakers	Myron Business Computers Chester House Windsor End Beaconsfield Bucks 04946 71257
	Vision Business Systems 58 St Peters St St Albans Herts
Bakers contd	AR Gerrard 27 Rosehill Drive Aughton Green Ormskirk Lancs 0695-422439
	Sumita Electronics 12-14 Avenham St Preston Lancs 0772-51686
	Vixon Computers 49 Grimsby Rd Cleethorpes Humberside 0472-58561
	Scope 141-45 Curtain Rd London EC2 01-729 3035
	Capital Electronics Developments Balfour House 590 Uxbridge Rd Hayes Middx 01-573 3681
	Alphajean Little Bourton House Southam Rd Banbury Oxon
	A and G Knight 108 Rosemount Place Aberdeen 0224-630526
	Intergrate Business Systems 32 Sovereign St Leeds
	Croeso Computer Services 516 Mumbles Rd Swansea 0792-60624
	Blandford Computers O and J House Ltd Shaftesbury Lane Blandford Forum Dorset 0258-53737
Banking	Sapphire Systems, 19/27 Kents Hill Rd Benfleet Essex 03745-59756
	Compact Accounting 71 Great Russell St London WC1 01-405 1250
	Mayrich Finsbury Circus House 4/10 Blomfield St London EC2 01-628 3040
	Granite Chips 21 Bon Accord St Aberdeen Scotland
	Octopus Computer Associates Ferrari House 258 Field End Rd Eastcote Middx
	Westbourne Business Systems 18 Garway Rd London W2
Banking-International	Scorpion Computing East Heath Ave Wokingham Berks 0734-788027
Barristers	Camden Electronics 1st floor 462 Coventry Rd Small Heath Birmingham 021-773 8240/ 021-771 3636
	Crest Office Equipment 6 Laurence Pountney Hill London EC4 01-621 0590
Bill of Materials	Micro Solution Park Farm House Weythrop Chipping Norton Oxon
Biomedical/Microbiology	Warner Computer Systems Wayside House Vicarage Rd Minster-in-Sheppey Kent 0795-874879
Bookings Control	CPM Data (Anglia) 46A King St Norwich Norfolk
Book Publishing	Automation Facilities Blakes Rd Wargrave Berks 073 522 3012
	SAIL Computer Office 14 Chapman Crescent Kenton Harrow Middx 01-204 9396

SPECIALITY	COMPANY
Bookshops	EMG Microcomputers 30 Heathfield Rd Croydon Surrey 01-688 0088
Bulletin Board	3-Line Computing 36 Clough Rd Hull N Humberside 0482-445496
Car Sales	Focus 95 Beverley Rd Hull N Humberside
	Bridgewater Computer Services Bridgewater House Bright Rd Eccles Manchester 061-789 8121/8117
	Pioneer Micro Systems 14 Hazelwood Rd Northampton 0604-28167
	EMG Microcomputers 30 Heathfield Rd Croydon Surrey 01-688 0088
Carpet Retailers	Cleveland Business Systems 3 Kensington Rd Middlesborough Cleveland 0642-828411
Carpet Wholesalers	Bridgewick Services 12 Christchurch Rd Bournemouth Dorset 0202-294624
Cash and Carry	Computation Automation Information 203A Belsize Rd London NW6 01-328 3968
	N Ireland Computer Centre 4 High St Holywood Co Down Holywood 6548
Chick/egg Production	Ebor Computer Services 4 Regents Buildings Acomb York
Commodity Broking	4 Upper Tachbrook St London SW1 01-834 7480
	Electronic Office Services 29/31 Fleet Lane London EC4 01-248 6971
Container Control (Shipping)	SMG Micros 39 Windmill St Gravesend Kent 0474-55813
Costing	Bridgewater Computer Services Bridgewater House Bright Rd Eccles Manchester 061-789 8121/8117
	Compucorp Barnet House 120 High St Edgware Middx
	Sharptext 72 Merrion Square Dublin 2 Dublin 517022
Dairies – Retail	Debug Data Services Station House Amersham Hill High Wycombe Bucks 0494-448777
	Arden Data Processing Municipal Building Charles St Leicester 0533-22255
	MacMicro Shore St Beauly Inverness *and* 39 Albert St Kirkwall Orkney Islands 0856-3140
	CM Computer Systems 57A New Rd Chippenham Wilts 0249-51341
Dairy Herd management	Farmfax 17 Hylton Rd Petersfield Hants 0730-66123
Deaf Systems	Jessop Acoustics Unit 5 7 Long St London E2 01-739 3232
Dentists	Microsave 289 Coronation Rd Bristol Avon 0272-667503
	Computaquest 88 Hassal Rd Sandbach Cheshire 09367-7272
	MCL Management Co-ordinates Wilmslow House Water Lane Wilmslow Cheshire 062-553 2865
	Briers Computer Services 1 King Edward Square Middlesborough Cleveland 0642-242017
	Commonsense Computing PO Box 7 Bideford Devon 02372-4795
	Lawson Computers 19 Walter Rd Swansea West Glamorgan
	Vixon Computers 49 Grimsby Rd Cleethorpes Humberside 0472-58561
	Abbotsford Office Equipment 136 Grays Inn Rd London WC1 01-837 3980
Dentists contd	Computer Interfacing and Equipment The Micro Spares Shop 19 Roseburn Terrace Edinburgh 031-337 5611
	Micro Forth 34 Dickson St Dunfermline Fife
	Silicon Centre 21 Comeley Bank Rd Edinburgh 031-332 5277
	Intac Data Systems Frost House Woodhouse Green Thurcroft Rotherham Yorks 0709-547170
	Sheffield Computer Centre 227 London Rd Sheffield 0742-53519
	Bucon 18 Mansel St Swansea 0792-467980
	Business Micro Systems 10A Belle Vue Way Swansea Glam 0792-474106
	Microcom (UK) 226 Oxford St Swansea Glam 0792-53401
	Terodec Unit 58 Suttons Park Ave Earley Reading 0734-664345
	The Business House 37 St Michaels Square Gloucester Gloucs 0452-424411
	Attar Computers 211 St Helens Rd Leigh Lancs 0942-671491
	Wordvision 53 Hurstwood South Ascot Berkshire
Department Stores	EMG Microcomputers 30 Heathfield Rd Croydon Surrey 01-688 0088
Designers	Computer Arts 11 London St Reading Berks 0734 54451
Double Glazing	Computaquest 88 Hassal Rd Sandbach Cheshire 09367-7272
	Sumlock Software Gilbert Wakefield House 67 Bewsey St Warrington Cheshire 0925-574594/3
	Milequip 7A Hare Lane Gloucester Gloucs 0452-411010
	Western Computers Blackpool Airport Blackpool Lancs 0253-404676
	Hinckley Micro Systems Edward Centre Regents St Hinckley Leics 0455-616147
	Evan-Jackson Computer Business Systems 92 Monks Rd Lincoln Lincs 0522-30371
	Computer Supplies (Swansea) 80/82 Gower Rd Sketty Swansea 0792-290047
Dry Cleaners	Brittain Laboratories 451 Donegal Rd Belfast N Ireland 0232-28374
Employment	Lion Microcomputers Lion House 227 Tottenham Court Rd London W1 01-637 8760
	MSS MSS House 54 Chapel Rd Worthing Sussex 0903-34755
Electrical Design	Computershop 21 Church St Reigate Surrey 74-22244
Estates	Parwest 18 St Mary St Chippenham Wilts
	Radan Computational 19 Belmont Lansdowne Rd Bath Avon 0225-318483
Export Administration	Warner Computer Systems Wayside House Vicarage Rd Minster-in-Sheppey Kent 0795-874879
	ZR Industrial and Commercial Business Consultants City House 9 The Avenue Lincoln Lincs 0522-31621
Factory Planning	Micromark Ravenscroft Rd Henley-on-Thames Oxon
Fish Farming	HCCS 533 Durham Rd Low Fell Gateshead Tyne and Wear 0632 821924
Fleet Administration	Sapphire Systems 19/27 Kents Hill Rd Benfleet Essex 03745-59756

SPECIALITY	COMPANY
Fleet Hire	Spinks Computer Systems 27 Friar St Worcester 0905-29466
Freight Forwarders	Integer Microsystems 4th floor Fairfax House Causton Rd Colchester Essex
Frozen Food	Management Co-ordinates Wilmslow House Water Lane Wilmslow Cheshire 07073-34774
Fruit and Vegetable Marketing	DRG Business Machines 13/14 Lynx Crescent West-Super-Mare Avon 0934 415398
	Dovetail 17 Burlington St Blackburn Lancs 0254-665867
Fund-Raising Organising	Sharptext 72 Merrion Square Dublin 2 0001-517022
Garages	Mercator Computer Systems 3 Whiteladies Rd Clifton Bristol 0272-731079
	Electec 73 Charles St Louth Lincs 0507-605489
	Total Data Microcomputers 18/19 Market Place Banbury Oxon 0295-73635
	Computer Supplies (Swansea), 80/82 Gower Rd Sketty Swansea Glam 0792-290047
	Wordvision 53 Hurstwood South Ascot Berkshire
Garment Industry	Davidson Richards 14 Duffield Rd, Derby 0332-366803
	Methods Workshop 1 Dicconson Terrace Wigan Lancs 0942-47138
	Scope 141-45 Curtain Rd London EC2 01-729 3035
	Taunton Electronics 26 High St Bishop's Lydeard Taunton Somerset 0823-433142
Bottled Gas Accounts	MAP Computer Systems 111 Union St Oldham Lancs 061-624 5662
	Sharptext 72 Merrion Square Dublin 2 Dublin 517022
Geological	Nano Computing 82 Queens Drive Sandbach Cheshire 09367-60448
Glass Merchants	Senanglia 1 Clopton Drive Longelford Suffolk 0787 71351
	Capricorn Computer Systems 24 Foregate St Worcester
Glaziers	Rika Trivett House 1 Short Hill Nottingham Notts 0602-582438
	Spinks Computer Systems 27 Friar St Worcester 0905-29466
Golf Clubs	Polymath Associates Pencwarre Sarnau Llandyssul Dyfed
Grain Traders	Alpha Microsystems (UK) Alpha House 13-27 Brunswick Place London N1 01-250 1616
Haulage	B and B (Computers) 124 Newport St Bolton Lancs 0204-382741
	Microtrading 641 Bromford Lane Birmingham 021-784 0077
Heating/Ventilating	Walters Computer Systems 57 High St Stourbridge W Midlands 03843-70811
	Numicro (UK) Meadows House Well St Buckingham Bucks 02802-2910
Hire Companies	Diskwise 25 Fore St Callington Cornwall Callington 3780
	Merchant Systems Bride Court 5 New Bridge St London EC4 01-583 6774
	Classicus Business Systems 4th floor King's House King's St, Bedworth Warwicks 0203-315503
Hire Purchase	Westwood Computers 117 Tennant St Five Ways Birmingham 021-632 5824
	Beta Systems 4 Upper Tachbrook St London SW1 01-834 7480
Holiday Bookings	Lendac Data Systems 8 Dawson St Dublin 2
Holiday Letting	DJ Taylor and Co 'Amberley' Monument Rd Helston Cornwall 03265-3795
	Potter Lawson Computers 26 Walter Rd Swansea Glam
Hosiery/Sewing Machine Manufacturers	Hinckley Microsystems Edward Centre Regents St Hinckley Leics 0455-61647
Hotels	Asmap Environmental Products Unit 1 Dodnor Industrial Estate Newport Isle of Wight
	Microsave 289 Coronation Rd Bristol Avon 0272-667503
	The Computer Shop Group 7/9 Gosbrook Rd Caversham Reading Berks 0734 481008
	Hunting Business Systems 3 Brough House Mitchell Ave Thorn Bay Cleveland
	South-West Office Equipment Redruth Cornwall 0209-213299
	Diskwise Deptford Place North Hill Plymouth Devon 0752-267000
	Keel Data Systems Crossways Herbert Rd Salcombe S Devon
	Blandford Computers O and J House Shaftesbury Lane Blandford Forum Dorset 0258-53737
	Clacton Computer Centre 29/31 Pier Avenue Clacton-on-Sea Essex 0255-22644
	Guestel 8-12 New Bridge Street London EC4 01-583 2255
	Business Electronics Rownhams House Rownhams Southampton 0703 738248
	Hinckley Micro Systems Edward Centre Regents St Hinckley Leics 0455-616147
	Informex-London 8/12 Lee High Rd London SE13 01-318 4213
	Merchant Systems Bride Court 5 New Bridge St London EC4 01-583 6774
	Newtronics 255 Archway Rd London N6 01-348 3325
	Sumlock Bondain 263/69 City Rd London EC1 01-253 2447/250 0505
	Sharptext 72 Merrion Square Dublin 2 Dublin 517022
	Tomorrow's World Grafton Arcade Grafton St Dublin 2
	Micromark Ravenscroft Rd Henley-on-Thames Oxon
	Robox Data Systems Unit 15 Anderston Centre Argyll St Glasgow 041-221 8413/4
	Turnkey Computer Technology 23 Calderglen Rd St Leonards East Kilbridge Scotland
	Hourds Computing 7/8 Mill St Stafford Staffs 0785-44221
	Croeso Computer Services 516 Mumbles Rd Mumbles Swansea 0792-60624
	Potter Lawson Computers 26 Walter Rd Swansea
	Mitre Finch Tower House Fishergate Yorks 0904-52995
Housing Maintenance	CJR Microtek 15 Lower Brook St Ipswich Suffolk 0473-50152
Import/Export	Data Systems London 33 Great James St London WC1
	Rostronics 115/17 Wandsworth High St London SW18 01-870 4805

SPECIALITY	COMPANY
Industrial Cleaning Trade	Micro Associates 471 Lichfield Rd Aston Birmingham 021-328 4574
Jewellery Retailers	Software Aids International Ltd 16 Norval Rd, N. Wembley Middx 01-904 8139
Jewellery Manufacturers	Beta Systems 4 Upper Tachbrook St London SW1 01-834 7480
	Software Aids International Ltd 16 Norval Rd, N. Wembley Middx 01-904 8139
Job Costing	DRG Business Machines 13/14 Lynx Crescent West-Super-Mare Avon 0934 415398
	Hunting Business Systems Brough House Mitchell Ave Thorn Bay Cleveland
	Stuart R Dean 373 Southchurch Rd Southend-on-Sea Essex 0702 62707
	B and B (Computers) 124 Newport St Bolton Lancs 0204-382741
	Style Systems 28 Railway Rd Darwen Lancs 0254 71638
	Kalamazoo Business Systems Northfield Birmingham B31 2RW
	Scope 141-45 Curtain Rd London EC2 01-729 3035
	Franklin Construction Co 158 Hanworth Rd Hounslow Middx 01-570 0864
	Hyford Business Machines 120 Botley Rd Oxford
	Hill Briton and Associates Victoria Chambers 42 Frederick St Edinburgh
	MacMicro 39 Albert St Kirkwall Orkney Islands Scotland 0856-3140
	Somerset Business Computers 25 East Reach Taunton Somerset 0823-52149
	Oak Computer Systems St George's House Cattawade Manningtree Essex 0206-395097
	Compass Computer Services 47 High St Tunbridge Wells Kent 0892-44888/9
Kitchen Design/ Manufacture	Greenwood Computer Systems 112-114 Wembley Park Drive Wembley Middx 01-902 9044
	DMS Electronics South Anston Nr Sheffield 0909-563918
	Micro-K Computer Design Systems 188B Martin Way Morden Surrey 01-543 1119
Kitchen Retailers	Computaquest 88 Hassal Rd Sandbach Cheshire 09367-7272
Leasing Companies	Capital Electronics Developments Balfour House 590 Uxbridge Rd Hayes Middx 01-573 3681
	Impax Computer Services PO Box 18 Redditch Worcs 0527-66776
Leather and Packaging Trade	Micro Associates 471 Lichfield Rd Aston Birmingham 021-328 4574
Lettuce and Tomato Farming	LD Moran Micro-Chip Shop 190 Lord St Fleetwood Lancs 03917-79511
Library Loans	GB Computers 19 Cross St Leamington Spa Warwicks 0926-311820
Linear Programming	Digitus Lading House 10/14 Bedford St London WC2 01-379 6968
Local Authorities	Harrison Computer Services (Eastern) 19 East Hill Colchester Essex 0206-867667
	Business Micro Systems 10A Belle Vue Way Swansea 0792-474106 and Copthall Tower House Station Parade Harrogate N Yorks 0423-68224
Lotteries	Lawson Computers 19 Walter Rd Swansea 0792-474939
Magistrates Court System	Computer Facility 32 Redlands Rd Reading Berks 0734-867855
Mailing	Westwood Computers 117 Tennant St Five Ways Birmingham 021-632 5824
	Meclec 5/6 Towerfield Close Shoeburyness Essex 03708-5047
	3-Line Computing 36 Clough Rd Hull N Humberside 0482-445496
	Arden Data Processing Municipal Building Charles St Leicester 0533-22255
	Todds Business Computers 9 Newland Lincoln 0522-24146
	Abbotsford Office Equipment 136 Grays Inn Rd London WC1 01-837 3980
	Informex-London 8/12 Lee High Rd London SE13 01-318 4213
	K-Data 2 Glebelands Loxwood Billingshurst W Sussex 0403-752905
	System Micros Systems House 9 Victoria Rd Shifnal Salop
	Infospect Leeds Bridge House Leeds Bridge Leeds yorks 0532-441678
	Microcare Computing 18 Hawarden Rd Newport Gwent 0633-278040
Mail Order	Software Ltd Duchess House 18-19 Warren St London W1
	WLL Computer Services 150 Claremont Rd Salford Manchester
Maintenance Scheduling	McDowell Knaggs and Associates Shades House Meal Cheapen St Worcester 0905-28466
Market Research	Mercator Computer Systems 3 Whiteladies Rd Clifton Bristol 0272-731079
	Quest Micro Systems Queensleigh House 167 Queensway London W2 01-229 1403
Membership Subscriptions	Mountain Software Growers 11 Swinegate Grantham Lincs 0476-73718 *and* 3 Harcourt Rd Dorley Reach Maidenhead Berks 0628-23953 *and* 50 Crawley Hill Camberley Surrey 0276-22853
Menu Control/Recipe Costing	B and B (Computers) 124 Newport St Bolton Lancs 0204-382741
	Business Equipment Centre 10 Edge Lane Liverpool 051-263 5783
Metrology	Topmark Computers Peppercorns Business Centre Eaton Socon St Neots Cambs
Mini-Cabs	MO Brien Hi Fi 95 High St Wimbledon Village London SW19 01-946 1528
Money-lenders	Sumlock Bondain 263-69 City Rd London EC1 01-253 2447/250 0505
Motor Trade	Management Co-ordinates Wilmslow House Water Lane Wilmslow Cheshire 07073-34774
	Ronix 176 Lower High St Stourbridge W Midlands 0562-884663
	Dayta Computer Systems Kingsbury Square Wilton Salisbury Wilts 0722-74 3898
	Eliteward Portsmouth Rd Ripley Surrey
Multi-Currency	Numicro (UK) Meadows House Well St Buckingham Bucks 02802 2910
Multi-Lingual	Numicro (UK) Meadows House Well St Buckingham Bucks 02802 2910
Naval	The Bedford Micro Centre 31/33 Tavistock St Bedford 0234-215015
	Rental Research 2 London Wall Buildings London Wall London EC2 01-628 0341

SPECIALITY	COMPANY
Offshore Oil Industry	Micropack The Quay Newburgh Aberdeenshire
	MOM Aberdeen (Offshore) 21 Bon Accord St Aberdeen Scotland 0224-22863
Oil and Fuel Distributors	Bridgewick Services 12 Christchurch Rd Bournemouth Dorset 0202-294624
	Integer Microsystems 4th floor Fairfax House Causton Rd Colchester Essex
Opticians	Computer Interfacing and Equipment The Micro Spares Shop 19 Roseburn Terrace Edinburgh 031-337 5611
	Granite Chips 21 Bon Accord St Aberdeen Scotland
Pallet Manufacturers	Dovetail 17 Burlington St Blackburn Lancs 0254-665867
Personnel	Personal Computer Palace 6 Castle St Reading Berks
	Reading Micro Centre 275 Oxford Rd Reading Berks 0734-585928/9
	Scorpion Computing East Heath Ave Wokingham Berks 0734-788027
	Bridgewick Services 12 Christchurch Rd Bournemouth Dorset 0202-294624
	Thorpe Management Technology 184 East Barnet Rd Barnet Herts 01-440 9372
	Digitus Lading House 10/14 Bedford St London WC2 01-379 6968
	Missing Link Computers Abacus House 55 Ballards Lane Finchley London N3 01-349 4711/2/3/4
	Micromedia Seymour House 14-16 Chepstow Rd Newport Gwent
	Kalamazoo Business Systems Northfield Birmingham B31 2RW
Pharmacy	The Bedford Micro Centre 31/33 Tavistock St Bedford 0234-215015
	Briers Computer Services 1 King Edward Square Middlesborough Cleveland 0642-242017
	West London Microcentre 6 Pavilion Parade Wood lane London W12 01-743 9000
	BEC Computerworld 66 Lime St Liverpool 051-708 7100
	Greyhound Microcomputers 1 Central Ave Peacehaven Newhaven Sussex 07914-3702
	Unichem Crown House Morden Surrey
	Vixon Computer Systems 49 Grimsby Rd Cleethorpes Humberside
Pig Farming	Radan Computational 19 Belmont Lansdown Rd Bath Avon 0225-318483
	Harram Computers Harram House Horringer Bury St Edmunds Suffolk 028488-534
	Farmfax 17 Hylton Rd Petersfield Hants 0730 66123
Pipe Loss	Gemsoft 27 Chobham Rd Woking Surrey 04862-22881
Plant Maintenance	Midland Micro Services Sewstern Industrial Estate Gunby Rd Sewstern Grantham Lincs 0476-860014
	Arden Data Processing 166 Park Rd Peterborough Northants 0733-47767
Plumbing/Heating/Electrical Estimating	Ronix 176 Lower High St Stourbridge W Midlands 0562-884663
Printers' Estimating and Costing	Michael Groom 143/5 Queen's Way Bletchley Milton Keynes Bucks 0908 644848
	Harrison Computer Services (Eastern) 19 East Hill Colchester Essex 0206-867667
Printers contd	Aset 24 Princes St Southport Lancs 0704-43008
	Soundservice 26 Standish St Burnley Lancs 0282-38481
	Mayrich Finsbury Circus House 4/10 Blomfield St London EC2 01-628 3040
	Scope 141/145 Curtain Rd London EC2 01-729 3035
	Wason Microshop 238 Fore St Edmonton London N18 01-807 1757
	Micromark Ravenscroft Rd Henley-on-Thames Oxon
	Microbits Barford House Shute End Wokingham Berks 0734 792021
Print Industry Production Control	Mayrich Finsbury Circus House 4/10 Blomfield St London EC2 01-628 3040
	Black Isle Systems Dewar House Avoch Highlands 0381-20276
Probation Services	McDowell Knaggs and Associates Shades House Meal Cheap St Worcester 0905-28466
Process Control	Topmark Computers Peppercorns Business Centre Eaton Socon St Neots Cambs
	Elfton Advance Chambers Surtees St Hartlepool Cleveland
	Dyad Developments The Priory Great Milton Oxon 0844-729
	Kratos Computer Systems Walton Industrial Estate Stone Staffs 0785-812131
	Simon Computers 28 Lower Addiscombe Rd Croydon Surrey
Production Control	Vlasak Computer Systems Vlasak House Stuart Rd High Wycombe Bucks 0494 448633
	Comart Little End Rd Eaton Scon St Neots Cambs 0480-215005
	Micropute Catherine St Macclesfield Cheshire 0625-612759
	Jarman Systems 6A Dolphin Square Tring Herts 0442-82 6841
	Vision Business Systems 58 St Peters St St Albans Herts
	Nelson Computer Services St John's Court Bacup Rd Rawtenstall Lancs 07062-29125
Program Development	Microprocessor Developments 86 West End Lane London NW6 01-328 3391
Property Management	GT Office Systems 12 Clovelly Rd London W5 01-567 9959
	Lion Microcomputers Lion House 227 Tottenham Court Rd London W1 01-637 8760
Pubs	Computer Arts 11 London St Reading Berks 0734 54451
	Brown's Computer Systems 7/9 Woodstock Rd Oxford Oxon 0865-511995
	Software Aids International Ltd 16 Norval Rd, N. Wembley Middx 01-904 8139
	ECL 1A Upper Baggot St Dublin Dublin 681355 *and* 16 Wellington Park Belfast 0232-664737
	Sharptext 72 Merrion Square Dublin 2 Dublin 517022
	Micro Forth 34 Dickson St Dunfermline Fife
Questionnaire Processing and Analysis	Basys 129 Washington Avenue Hemel Hempstead Herts 0442-41999
Radio System	Logsys (Business Systems) Logsys House 5 Albert Rd Crowthorne Berks 03346-77877

SPECIALITY	COMPANY
Recruitment Consultants	Core International 92 Wolverhampton Rd Stafford Staffs 0785-42611
	Data Base 169 High St Cheveley Newmarket Suffolk 0638-730625
Rental Accounting	Ambassador Computers Ashley Lane Shipley Yorks
Rents and Disbursements	Farmfax 17 Hylton Rd Petersfield Hants 0730-66123
Replacement Windows	Missing Link Computers Abacus House 55 Ballards Lane Finchley London N3 01-349 4711/2/3/4
Reservations	Colt Computer Systems Fairfield Works Fairfield Rd Hounslow Middx 01-577 2686
	Twenty-Fifty Consultants 37 Couching St Watlington Oxon 049-161 3261
	Wintec Old Mill House Mill Lane Uckfield Sussex 0273-23020
Restaurants	Brown's Computer Systems 7/9 Woodstock Rd Oxford 0865-511995
Retail Management	Style Systems 28 Railway Rd Darwen Lancs 0254 71638
Retailing/ Shopkeepers	Capital Electronics Developments Balfour House 590 Uxbridge Rd Hayes Middx 01-573 3681
	Software Aids International Ltd 16 Norval Rd, N. Wembley Middx 01-904 8139
	Rothwell Associates Trowell Hall Trowell Notts
	Personal Computer Palace 6 Castle St Reading Berks 0734 589249
	Brent Computer Systems 33 Church St Rickmansworth Herts 87-71306
	Burocare 112 Southampton Row London WC1 01-958 7198
	Easibee Computing 133/135 High St North London E6 01-471 4884
	RBM 300 Thornton Rd Croydon Surrey 01-684 1134
Retailing-Multiple Branch	Data Systems Supplies Shorehead Rd Newburgh Fife
Secretaries	City Computer Centre 105 Whitecross St London EC1 01-588 5537
Service Stations	AC Systems 6 Cathedral Lane Truro Cornwall Truro 79727 *and* 75 Mutley Plain Plymouth Devon 0752 260861 *and* 53 Magdalen Rd Exeter Devon 0392-71718
	Croeso Computer Services 516 Mumbles Rd Mumbles Swansea
Shipbroking	Rostronics 115/117 Wandsworth High St London SW18 01-870 4805
	EWL Computers 8 Royal Crescent Glasgow
Shoe Retailing	Ronix 176 Lower High St Stourbridge W Midlands 0562-884663
Skip Hire	Capricorn Computer Systems 24 Foregate St Worcester
Social Clubs	Cleveland Business Systems 3 Kensington Rd Middlesborough Cleveland 0642-828411
	Trionic Business Services 10 Landress Lane Beverley N Humberside 0482-867824
Stockbroking	Abbotsford Office Equipment 136 Grays Inn Rd London WC1 01-837 3980
	City Computer Centre 105 Whitecross St London EC1 01-588 5537
	Rostronics 115/117 Wandsworth High St London SW18 01-870 4805
Stockbroking contd	Twenty-Fifty Consultants 37 Couching St Watlington Oxon 049161-3261
	Eurotec Consultants 123 High St Colchester Essex
Structural Steel	Micro Forth 34 Dickson St Dunfermline Fife
Supermarkets	Chiltern Microcomputers Finlandia Centre Oxford Rd Gerrards Cross Bucks 0734 581739
Supermarkets	Chiltern Microcomputers Finlandia Centre Oxford Rd Gerrards Cross Bucks 0734 581739
Land/Hydrographic Surveying	DJ Herriot Survey House 69 B London Rd Southborough Tunbridge Wells Kent
Quantity Surveying	Roger Clark Business Systems 96/100 Charles St Leicester 0533-20455
	CIC London 4A Russell Hill Rd Purley Surrey 01-668 0683 Microcomputers at Lasky's 16/20 Penn St Bristol 0272-20421; 19/21 Corporation St Birmingham 021-632 6303; The Forum Northgate St Chester 0244-317667; 1/4 Guildhall Arcade Preston Lancs 0772-59264; 42 Tottenham Court Rd London N1 01-636 0845; 33 Dale St Liverpool 051-236 2828; 12/14 St Mary's Gate Market St Manchester 061-832 6087; 22/24 West Nile St Glasgow; 4 St James Centre Edinburgh; 55 Leopold St Sheffield 0742-750971
	Computation Automation Information 203A Belsize Rd London NW6 01-328 3968
	Zestplan Trowell Hall Trowell Notts 0602-320125
	Cyderpress Church Lane Wallingford Oxon
	Hill Briton and Associates Victoria Chambers 42 Frederick St Edinburgh
	Tyseal Office Equipment 19 Belmont Aberdeen 0224 29019
	K-Data 2 Glebelands Loxwood Billingshurst W Sussex 0403-752905
	Masterbill Microsystems St John's House St Johns Rd Watford Herts
	Office Machinery Engineering 73 London Rd Brighton 0273 689682
	Spot Computer Systems New Street Kelham Industrial Estate Doncaster 0302-25159
	Gerald G Darby Computer Services 4 Simpson Rd Sutton Coldfield W Midlands
Telex Processing	Missing Link Computers Abacus House 55 Ballards Lane Finchley London N3 01-349 4711/2/3/4
Time Records	Mountain Software Growers 11 Swinegate Grantham Lincs 0476-73718; 3 Harcourt Rd Dorley Reach Maidenhead Berks 0628-23953; 50 Crawley Hill Camberley Surrey 0276-22853
	Basic Business Systems 61 Loughborough Rd Trent Bridge W Bridgeford Notts 0602-819713
	GB Computers 19 Cross St Leamington Spa Warwicks 0926-311820
	Benchmark Computer Systems 7/8 Aylmer Square St Austell Cornwall 0726 61000
	Bridgewick Services 12 Christchurch Bournemouth Dorset 0202-294624
Tour Operators	Harrison Computer Services (Eastern) 19 East Hill Colchester Essex 0206-867667
	Professional Data Systems Carne House Markland Hill Bolton Lancs 0204 493816
	Welsh Business Systems 1 Windsor Chambers Windsor Arcade Penarth 0222-70021/2

SPECIALITY	COMPANY
Transport	Camden Electronics 1st floor 462 Coventry Rd Small Heath Birmingham 021-773 8240/771 3636
	MDA Computer Systems 91 High St Evesham Worcs
	Spinks Computer Systems 27 Friar St Worcester 0905-29466
Travel Agents	Alan Pearman Ltd Maple House Mortlake Crescent Chester 0244-46024
	Cunningham Computer Systems 7 Clarence St Paisley Scotland
	Nelson Computer Services St John's Court Bacup Rd Rawtenstall Lancs 07062-29125
	Alpha Microsystems (UK) Alpha House 13/27 Brunswick Place London N1 01-250 1616
	Micro Facilities 129 High St Hampton Hill Middx
	Printronic Computer Systems Hill House Raglan Gwent 0291-690214
Trust and Probate	Brent Computer Systems 33 Church St Rickmansworth Herts 87-71306
TV Rentals	Bellard Electronics Video House 115 Long Lane Upton Chester Cheshire 0244-380123
	Diskwise 25 Fore St Callington Cornwall Callington 3780 *and* Deptford Place North Hill Plymouth Devon 0752-267000
	Evan-Jackson Computer Business Systems 92 Monks Rd Lincoln Lincs 0522-30371
	Tomorrow's World Grafton Arcade Grafton St Dublin 2
	MacMicro Shore St Beauly Inverness *and* 39 Albert St Kirkwall Orkney Islands Scotland 0856-3140
Vehicle Service Record	Compass Computer Services 47 High St Tunbridge Wells Kent 0892-44888/9
Vets	Numicro (UK) Meadows House Well St Buckingham Bucks 02802-2910
	Nano Computing 82 Queens Drive Sandbach Cheshire 09367-60448
	Computer Interfacing and Equipment The Micro-Spares Shop 19 Roseburn Terrace Edinburgh 031-337 5611
	Agriday Computers Kingsbury Square Wilton Nr Salisbury Wilts
Video Clubs	Anita Business Systems 15 Clerkenwell Close London EC1 01-253 2444 *and* 50 Fenchurch Street London EC3
Video Hire	Advanced Micro Products 28 Pound Place Eltham London SE9 01-850 8280
	Eliteward Portsmouth Rd Ripley Surrey
Warehouse Distribution	Management Co-ordinates Wilmslow House Water Lane Wilmslow Cheshire 062553-2865
	Style Systems 28 Railway Rd Darwen Lancs 0254 71638
	Easibee Computing 133/35 High St North London E6 01-471 4884
	Sharptext 72 Merrion Square Dublin 2 Dublin 517022
	MDA Computer Systems 91 High St Evesham Worcs
Weaving	HCCS 533 Durham Rd Low Fell Gateshead Tyne and Wear 0632 821924
Wholesalers	Rothwell Associates Trowell Hall Trowell Notts
Window Manufacturers	Computer Supplies (Swansea) 80/2 Gower Rd Sketty Swansea 0792-290047

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Useful User Groups

Below is a guide to user groups – the organisations which have sprung up around particular micro-computer systems and exist to compare notes and offer advice based on individual user experience.

Groups which offer particular help to business people and first-time buyers are outlined below. But other groups, listed here, can be of general help depending on individual needs and, of course, what manufacturer's system you have.

Computer Club Mr L Boxell 8 Vane Terrace Darlington 0325-67766	Computer Club has a business division.
Merseyside Microcomputer Group Mr F Shaw 14 Albany Avenue Eccleston Park Prescot 051-426 5536	No business division but group meetings on Tandy, Apple and Pet. Meet once a month. Training in Basic.
National TRS80 Brian Pain 40A High Street Stony Stratford Milton Keynes 0908-566660	Has a new business sub group.
Isle of Wight TRS80 Users Club Sean Coulson 11 Star Street Ryde Isle of Wight 0983 614589	Sheppard is happy to give advice on programming in particular VAT, payroll, nominal ledger, and incomplete accountancy.
British Apple Systems User Group The Secretary PO Box 174 Watford WD2 6NF 0727 72917	For Apple II and ITT 2020 users or potential users. Advice on programming and problems with dealers. Courses on languages and programming.
North London Hobby Computer Club Chris Carter Dept. Electronics North London Polytechnical College Holloway Road London N7 01-607 2789, 01-226 1234	Has a special division for small business and commercial users. Demonstration of new packages and new hardware and a range of other services.
Commodore Pet User Group Margaret Gulliford Slough 75-74111	Publishes a monthly magazine specifically for Commodore users.
Decus (Digital Equipment Computer) Users' Society The Secretariat PO Box 53 Reading 0734-387725	Commercial division. Special interest groups include most hardware, languages and operating systems. Program library giving access to lots of software.
CUA User Group (Computer User Aids) Adrian Waters 9 Moss Lane Romford 70-64954	Business division. Sell and give advice on its systems. Self help and newsletter on other systems such as Apple and Pet.
The 6502 Users Club 0908 648191	Amateur computing club offers advice on programming.
TRS80 – North West Group Melvyn D Franklin 40 Cowlees Westhoughton Bolton BL5 3EG 0942-812843	Bi-monthly newsletter, members' software library, sub-group, newsletter exchange with other Tandy groups

Other user groups include:

Ohio Scientific UK User Group
Tom Graves
19a West End
Somerset

Northeast Pets
Jim Cocallis
20 Worcester Road
Newton Hall Estate
Durham
0385-67045

East Midlands TRS80 Users' Group
Mike Costello
17 Langbank Avenue
Rise Park
Nottingham NG5 5BU
0602-751753

TRS80 User Club
Michael Dean
22 Roughtons
Galleywood
Chelmsford
Essex

CP/M Users Group (UK)
Ms C Stevenson
11 Sunstreet
London EC2M 2QD
01 247 0691

Independent Pet Users Group
57 Clough Hall Road
Kidsgrove
Stoke-on-Trent
Staffs

Research Machines Ltd
National User Group
MD Fischer
PO Box 75
Oxford OX4 1EY

UK Pet Users Club
Commodore Systems Division
360 Euston Road
London NW1 3BL

Acorn Atom User Group
Peter Frost
18 Frankwell Drive
Potters Green
Coventry
West Midlands

North Lancs User Group
Blackpool
Mick Fordham 0253 891769
John Robinson 0253 67091

Sharp User Group
Knights TV & Computers
108 Rosemount Place
Aberdeen

Sorcerer Program Exchange Club
Colin Morle
32 Watchyard Lane
Formby
Near Liverpool L37 3JU

TRS80 Level 1 User Group
N Rushton
123 Roughwood Drive
Northwood
Kirby
Merseyside L33 9UG

Research Machines 380Z
Peter Smith
Birmingham Educational Computing Centre
Camp Hill
Teachers Centre
Stratford Road
Birmingham B11 1AR

Tangerine Users Group
16 Iddesleigh Road
Charminster
Bournemouth

IPUG South East Regional Group
W Cdr M Ryan
164 Chesterfield Drive
Sevenoaks
Kent TN13 2EH

Southern Users of Pets Association
42 Compton Road
Brighton BN1 5AN

North East RML-380Z Users' Group
Mr Hatfield or Mr Reed
Computer Unit
Northumberland Building
Newcastle Polytechnic
0632-326002

East Anglian Computer Users'
Gill Rijzl
88 St Benedict's Street
Norwich
0603-29652

General Practice Computer Club (UK)
Cheveley Park Medical Centre
Belmont Durham
0385-64285

User Training Diary 1982

Continuous courses MELTON MOWBRAY
Suitable for businessmen who are currently using or contemplating using microcomputers. No previous knowledge is supposed and hands-on experience will be available.
£475 plus VAT for five days including accommodation, meals and documentation. Limited to 16 students per course.
Details:
Course Secretary
Loscher Associates Ltd
18 Southbury Road
Enfield
Middlesex
01-367 2473

August 26 LEAMINGTON SPA
Understanding computers
No previous knowledge of computers will be assumed. The workshop's objectives are to enable people to find out what computers can and cannot do, what they do best and what the jargon means. Those attending will work in pairs using small computers and will write and test simple programs. £74.75.
July 13, September 7 LEAMINGTON SPA
Microcomputers in business
This one-day seminar will give examples of the use of microcomputers in business, a chance to try them out, a short introduction to programming and guidance on selecting hardware and software packages. £74.75.
Details:
Coventry Management Training Centre
Woodland Grange
Leamington Spa
0926-36621/5

August 2 BOURNEMOUTH
Making sense of micros
This workshop offers participants a non-technical understanding of microcomputers, related to their use as a problem-solving tool. Participants can get answers to questions that are directly related to their business, and hands-on experience will be available. Cost £330 plus VAT
IN HOUSE
Microkey
This is suitable for any business considering the use of a microcomputer. Discussions will be held with personnel throughout the company to determine the best use for a microcomputer. Cost negotiable.
Details for both:
The Course Registrar
John Hoskyns and Co Ltd
Africa House
67-78 Kingsway
London WC2
01-242 1951

June 30, July 1 EPSOM
Mini and microcomputer seminar
Two one-day seminars designed for non-technical potential computer users. The day is free and includes an idiots' guide to computer terminology; the problems of system specification; security procedures; and a look at the popular programs VisiCalc and MicroModeller. The aim is to show how computers can help in running a business. The programme finishes at 3.15pm but students may stay until 8 to talk to staff and play with the micros.
Further details:
Microcomputers for Business
Ferry Works
Summer Road
Thames Ditton
Surrey
01-398 2464

Continuous courses TONBRIDGE, KENT
Suitable for beginners who will have a microcomputer exclusively at their disposal throughout the course, which is for small groups of three to four people. There are no lectures, students learn at the keyboard from a course manual at their own pace.
Price £225 + VAT
Crownpark Ltd
Woodlands Road
Tonbridge Kent TN9 2NE
0732-356160

June 29-30 LUTON
An appreciation of microcomputers for management £145 plus VAT for non-members of the Institution of Industrial Managers which is organising this two-day workshop. The course will include an introduction to Basic, program writing workshop, discussion of the organisational impact of the technology, demonstrations of stock control, production control and word processing.
Details from:
Institution of Industrial Managers
Cardiff Road
Luton
Beds
0582-37071

July 26-28, September 20-24 CHESTER
APL for beginners
Suitable for people with no previous experience of computers or programming.
Three days £215 plus VAT for people who are familiar with the jargon and may have programmed in another language. Five days £325 plus VAT
The above courses run throughout the year, details from:
Course Administrator
A P Ltd
Maple House
Mortlake Crescent
Chester
0244-46024

Continuous Courses
BOURNEMOUTH and SOUTHAMPTON
10 – 15 hour courses in Basic for beginners. Maximum of five students for each session, and each student has one Genie 1 or Genie 11 microcomputer. Substantial course book and cassette of programs. First lesson free, rates from £3 an hour.
Details from:
Stringrose Limited
37/39 Station Road
New Milton
Hampshire
0425-615489

July 12-13 HAVERHILL, SUFFOLK
Basic programming course
Aimed at anyone who needs to write programs. Although Apple micros are used throughout the course the differences between the main versions of Basic are highlighted.
£250 plus VAT for the three days including notes and lunch.
Details: Britt-Marie Young
Systematics International Training and Education Centre
Cleves' House
Hamlet Road
Haverhill
Suffolk
Haverhill (0440) 61121

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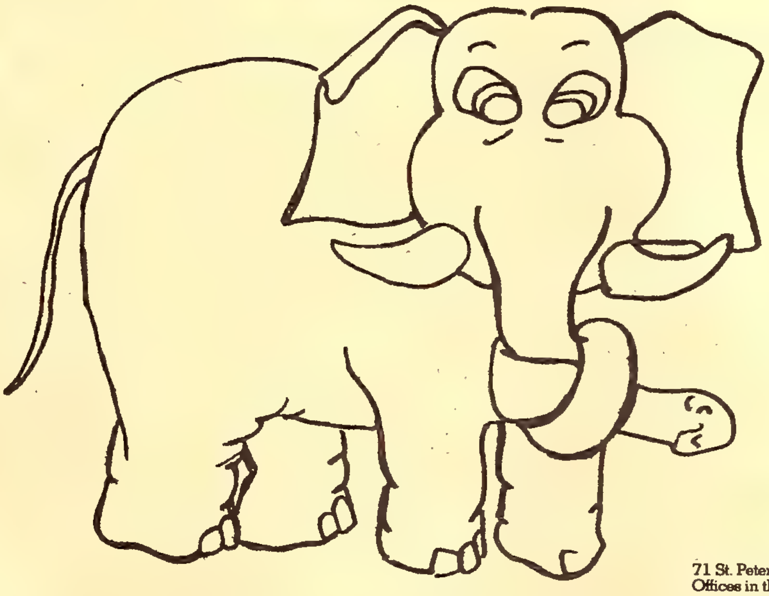

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The working life of a busy programmer

Dealing with doubts

I suppose, yes, a programmer is thought of as a breed apart. In some ways he is – but only because people believe he is.

I'm not a particularly good programmer, I don't think. That is, I'm not as conscientious as some of the people you find around the colleges. But what I do know is that I'm in demand.

You know what I mean. A user with a micro gets in touch with a so-called "software house" and asks it to write a lot of expensive software for his precious business operation. Or he's bought some ready-written programs and been unwise enough to put all his accounts on it, things have gone wrong and he calls in some "consultants" or "software specialists" to help.

What it boils down to is some guy scrabbling around trying to make money who rings me up pleading with me to spare a bit of my time to write some code for this punter.

Neither has the first idea of what programming is all about. They just leave it to me to perform a bit of magic and save their bacon. That's what being in demand means.

Some people of course think programmers are all scientific brain-boxes or mathematical geniuses.

Dead, dead wrong.

Programmers are just the sort of people who like tinkering with puzzles and filling in tricky crossword puzzles. Programming needs a kind of cussed patience and an appetite for problem-solving.

Some people think programmers are wonderful, creative, original thinkers producing brand new codes to turn their business wishes into practical reality.

Wrong, wrong and wrong again.

Programmers are cribbers. They copy and steal and plagiarise – if they've any sense – at every turn and opportunity. Original thinking in programming merely means lots of original effort to sort out again.

Some people think programmers have got this powerful vision – an ability to see all round the sides and inside and outside of a job, that just by looking at their requirements they'll start having ideas of how it all can be done.

This is so wrong it makes my teeth ache. Programmers are among the most single-minded and blinkered of people. They have to be. They have to concentrate on little strings of commands, bits of regurgitated logic which have to be fiddled about with like some sort of Rubik cube until it fits together – or *looks* like it fits together, anyway.

I haven't got the time or the inclination to get involved in the intimate details of some punter's small business.

Goodness no, if you just go in there and he shows you his accounts probably spread between broken books written in indecipherable writing, his filing system all done in shoe boxes...

No way, squire, you don't want to get mixed up with all that.

No, you say to him: look here's a little bit of software, it can do this and this, now that's the sort of thing you want to do, isn't it? Good, I'll write it for you, just bring your chequebook and a pen, and we'll all be happy.

I suppose you've heard about this "writing specifications" lark which the punter should do very carefully so that he's got some sort of comeback when the software doesn't do exactly what he wants it to do...

What a lot of old rot.

Most punters have no idea in the world what they really want. If I was to follow the specifications and lists of demands I've been given – usually all neatly typed out on a piece of letterheaded paper – I wouldn't have produced much practical stuff, I can tell you.

A punter usually doesn't really know how his business works – which is the number one problem. And a programmer doesn't have time to find out.

When you're talking about micros there's no money for high-flown consultants and systems analysts to come in and spend a few months working out how a firm runs.

The micro game is all about costs, after all.

Most punters, I expect, think that the couple of thousand they lash out on the hardware is all the big money they'll have to part with. Then you find that they want an accounting system linked to a stock control system linked to their doctor's surgery that can speak French and make them tea when they're tired.

It really makes me laugh sometimes. You have a quick chat with the punter to find out what he wants coding to do for him. He's full of requirements and ideas, and he sees you as some kindly doctor figure ready to cure his problems.

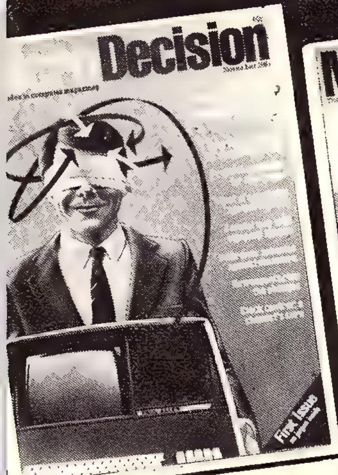
A few weeks later when you've put him straight about exactly what he can have and what it'll cost him, he's a changed man. He looks on you as some sort of demonic technical tyrant, ripping him off, pouring cold water on all his ambitions and enthusiasm.

The turnaround happens because a programmer is neither a friendly doctor nor a technical tyrant. He's just a cribber, a fixer who has a limited number of tricks up his sleeve and it's unrealistic to think of him as anything more.

No, just pay me for having a programming knack you think is too complex for anyone except Doctor Who to understand, and I'm happy. Yes, perhaps the customer does think I'm a genius, but then that reassures him, right?

It makes him think I'm doing a good job.

Chris Barnard spoke to a computer programmer.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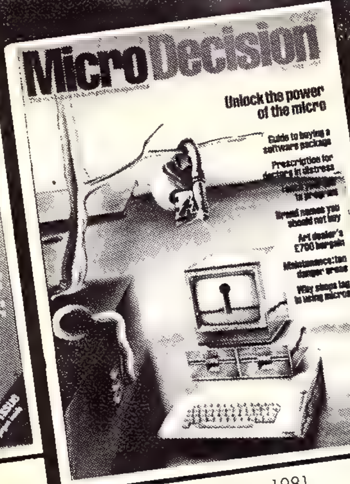
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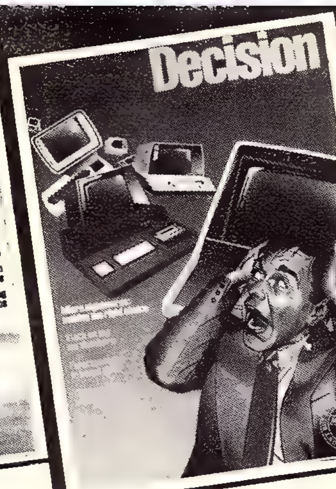

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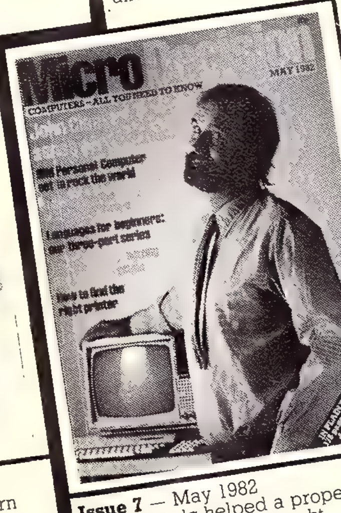
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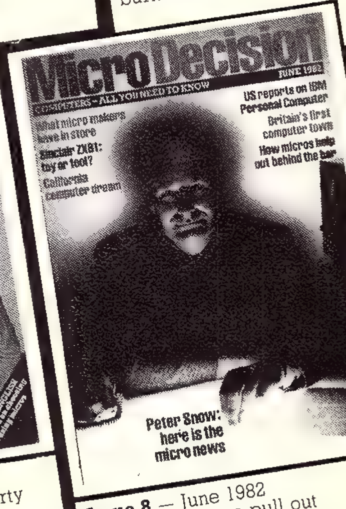
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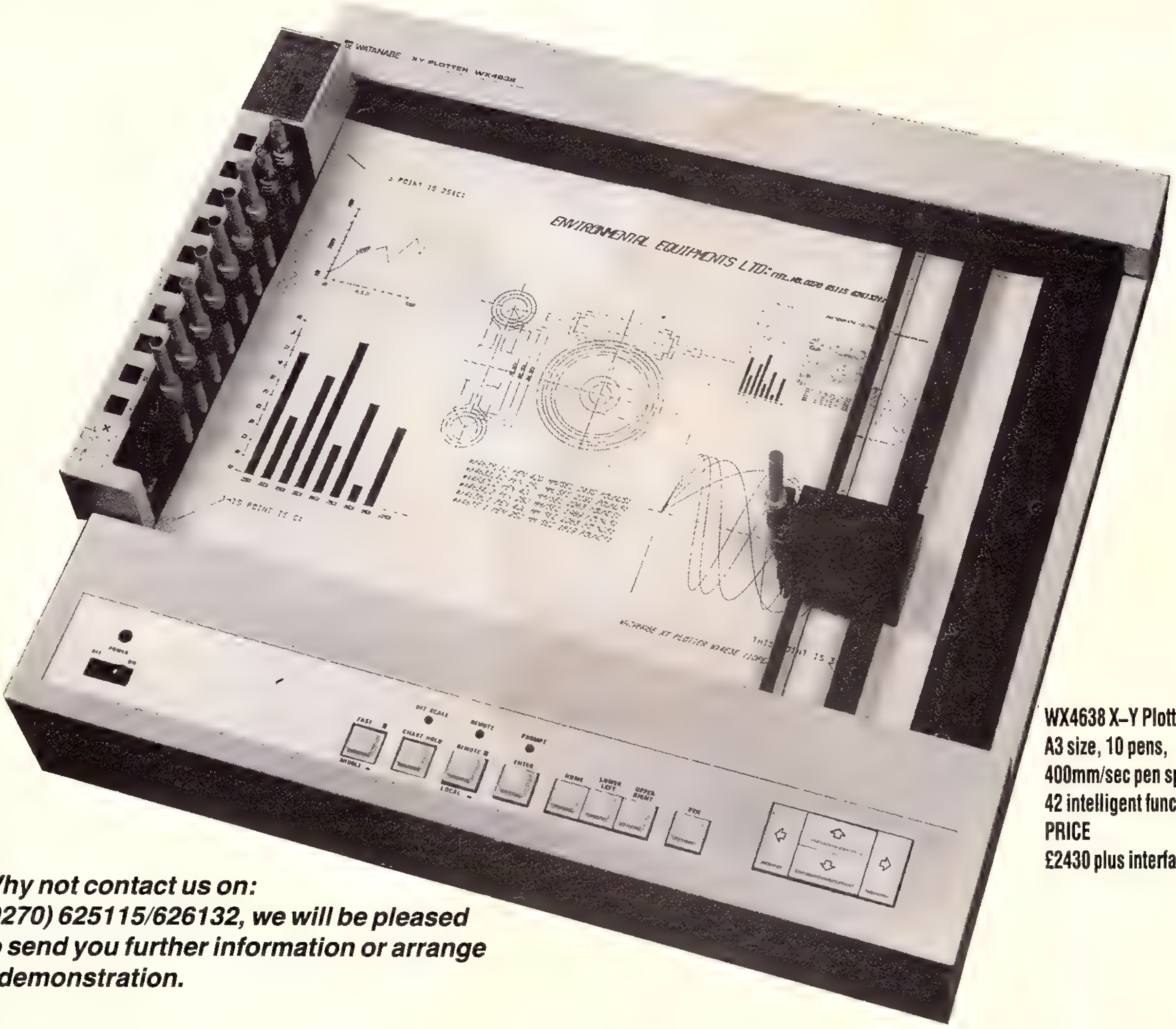

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A Snappy system to sum up statistics

Charles Christian takes a look at Snap software and the TeleVideo TS802H microcomputer on which it runs

Charles Christian was able to analyse statistics in seconds rather than hours

Over 80 years ago the famous American humourist Mark Twain wrote that in this world 'there are three kinds of lies – lies, damned lies and statistics'.

The situation can only have worsened since then. Whether it is politics, leisure habits, consumption trends or our private lives, there is someone somewhere wanting to collect statistics on the subject. And behind every set of statistics there has to be a survey, with questionnaires to gather the raw data from the interviewees. But, as anyone who has ever faced the task will tell you, the subsequent analysis of survey results to establish any relevant trends and correlations can often be a tiresome and frustrating business.

To date there have been two options available to the researcher. The first is to analyse the results by hand – generally a very slow and cumbersome process even for small surveys and indeed probably out of the question for more than 200 questionnaires or where any complex analysis is required.

The alternative is to use computer bureaux – these can provide complex but inevitably very expensive survey analysis facilities, which although ideal for large surveys are not particularly cost effective for smaller surveys of perhaps 50–3,000 respondents.

The obvious solution to this dilemma would seem to be a relatively low cost analysis program for microcomputers for the more modest survey. Indeed a number of programs are already on the market which do just that, but because they are designed for specific ranges of hardware their appeal is limited.

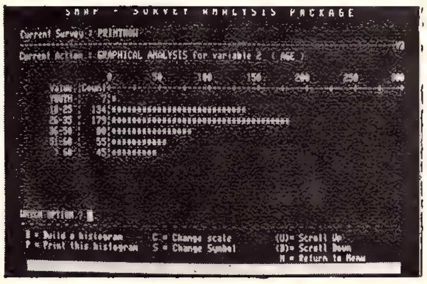
Recently, however, Mercator Computer Systems, a Bristol-based software house, entered the picture with Snap – Survey Analysis Package. It claims this is the first commercially available program for small to medium-sized surveys that can operate on a wide range of microcomputers. Before going on to review the software it would probably be most useful to discuss the hardware the program is designed to run on.

The first point to be mentioned here is that Snap has been written to run on microcomputers that support the CP/M operating system. For the non-technically minded it is not essential to understand the intricacies of CP/M other than that it considerably increases the efficiency of the system.

The second point to emphasise is that Snap will operate on a wide range of microcomputers including: TeleVideo, Superbrain, Cromemco, Tandy, Sirius, Digico, Sharp, Transam and Apple. Potential buyers can therefore choose between buying Snap as a stand-alone program to run on their own hardware for about £700, or obtaining a full system with both hardware, software and engineering support, from about £4,600 for a single user system with floppy disk storage, up to about £10,000 for a three screen multi-user system using a Winchester hard disk for storage.

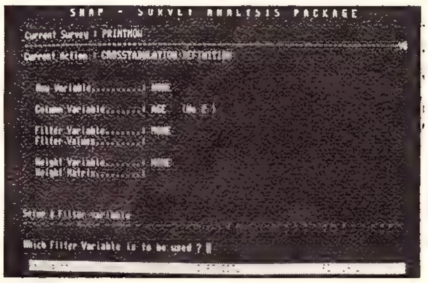
The hardware that was supplied to me for evaluation with Snap was a TeleVideo TS802H microcomputer and a DRE dot matrix printer. The printer was in fact not one Mercator would normally supply with one of its systems, but just happened to be the only one that was available for loan at that time. It would therefore not really be fair to devote too much time to it, other than to say that its fast print-out speed was a decided asset when it came to the production of long reports and it would certainly be essential for any Snap user to have a comparable machine. Mercator itself recommends an Epson MX100.

The TeleVideo had a combined disk and visual display unit (VDU) with a separate keyboard – a feature I found most useful as it meant that I could operate the system slumped in the comfort of an easy chair rather than sitting bolt-upright staring at the VDU screen. The brightness of the screen was adjustable, which was a plus point, but I found that the screen image was a little blurred and that the sound of ▶



```
              SNAP - SURVEY ANALYSIS PACKAGE
Current Survey : PRINTHOU
Current Action : GRAPHICAL ANALYSIS for variable 2 ( AGE )
                  0      50     100     150     200     250     300
       Value  Count+-------+-------+-------+-------+-------+-------+
       YOUTH      7 *
       18-25    134 ***************************
       26-35    179 ************************************
       36-50     80 ****************
       51-60     55 ***********
       > 60      45 *********

WHICH OPTION ? 
  B = Build a histogram      C = Change scale     (U)= Scroll Up
  P = Print this histogram   S = Change Symbol    (D)= Scroll Down
                                                   M = Return to Menu
```



```
              SNAP - SURVEY ANALYSIS PACKAGE
Current Survey : PRINTHOU
Current Action : CROSSTABULATION DEFINITION

   Row Variable.........: NONE

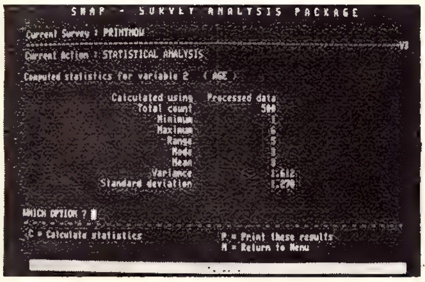
   Column Variable......: AGE    (No 2 )

   Filter Variable......: NONE
   Filter Values........:

   Weight Variable......: NONE
   Weight Matrix........:

Setup a Filter variable

Which Filter Variable is to be used ? 
```



```
              SNAP - SURVEY ANALYSIS PACKAGE
Current Survey : PRINTHOU
Current Action : STATISTICAL ANALYSIS
Computed statistics for variable 2  ( AGE )

                 Calculated using   Processed data
                      Total count              500
                          Minimum                1
                          Maximum                6
                            Range                5
                             Mode                3
                             Mean                3
                         Variance            1.612
               Standard deviation            1.270

WHICH OPTION ? 
 C = Calculate statistics            P = Print these results
                                     M = Return to Menu
```

Hard disks make the system much more straightforward for the beginner to use

AT A GLANCE

Points are given on the following scale:
* Poor   ** Below Average   *** Average
**** Above Average   ***** Excellent

Computer hardware quality	****
Computer hardware overall value for money	****
Computer hardware ease of use	*****
Computer hardware documentation	**
Overall software capability	****
Overall software ease of use	****
Overall software documentation	**
Overall software value for money	****
Total System Rating	****

Snap software and TeleVideo hardware: above average on value for money

▶the unit's cooling fan could be a distraction.

These are, however, very minor complaints and pale into complete insignificance when you consider the TS802H's undoubted main selling point – its 7.5 megabyte Winchester hard disk data storage system. Looking at the system from the point of view of the first-time user, I would say that although a hard disk system is considerably more expensive, it has three distinct advantages over the more conventional floppy disk-based microcomputer.

First, a hard disk has about 10 times the storage capacity of a floppy disk. Therefore there is plenty of room on the computer to run quite complex programs without having to resort to a battery of separate disks.

The capacity aspect also means that it is possible to store more than one program on the same hard disk. The unit I was supplied with, for example, also contained database management, accounting and word processing programs. Mercator intends to exploit this aspect in the future by offering Snap on a hard disk with the Wordstar word processing program so that statistical data can be incorporated directly into any report the computer user may be producing.

Second, data stored on a hard disk can be processed much faster. For example, to validate survey data containing 40 variables on a floppy disk-based microcomputer would take about 15 minutes, whereas on a hard disk system the same task can be completed in 10 minutes. In fact, according to Mercator, operating speeds can be increased by a factor of five in some instances by using hard disks.

Lastly, although experienced computer operators may be rather contemptuous of this point, a hard disk system is far more straightforward to operate. For example, it banishes the worry of whether you have put the appropriate disk in the correct drive. Instead, with hard disk, all the user has to do is just plug in the computer, turn it on and type in the letters "SNAP". This automatically 'boots in' (loads) the disk, as jargon would have it, and in about one second the program is ready to run.

Opting for hard disk then would definitely seem to be an attractive proposition, but what about the Snap software program it contains?

According to Mercator, Snap was designed as a general purpose tool for analysing a wide variety of survey results and should be of interest to market research companies; advertising agencies; marketing departments in commercial organisations; local and central government authorities; and universities and colleges. For once such a claim would not seem to be an exaggeration for, having worked with Snap during the course of this review, it certainly would seem to provide all the facilities required for the definition, collection, validation, correction and subsequent analysis of survey data.

Starting from the very beginning, Snap is a menu-driven piece of software. In other words at every stage of the operation the user is presented with a list of alternative courses of action, activated by depressing the appropriate key on the keyboard.

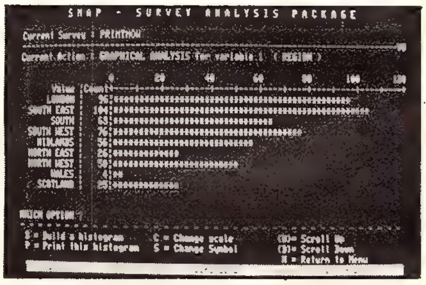
Further, anticipating the human error factor, the program has built-in safeguards against mistakes, including: understandable error messages, "yes-no" options to confirm particular choices; and in some places a routing procedure so that one stage in the program can only be pursued after a necessary intermediary stage has been completed. I must admit that at first I found it rather tiresome having to comply with all these requirements. On the other hand it did mean that it was virtually impossible, even without the user manual, to make serious mistakes when operating it. Hence overall it must be a big time saving factor.

To give some idea of Snap's scope it is probably best to list the range of functions it can offer the operator. These include:

- The design of questionnaires;
- The collection and editing of survey data;
- Range and value checking, including verification on input;
- Data recordings and consistency checking;
- Hole-count (ie response to questions) analysis;
- Cross tabulation including filtering and weighting;
- The creation of histograms;
- The production of descriptive statistics, printed tables and reports.

I was particularly impressed that two major methods of operation are available within Snap.

Firstly is the 'interview format' which is ideal for 'hall tests', telephone interviewing and small simple surveys. Once the questionnaire is set up within Snap the replies, which can be fed in using the computer keyboard or some form of graphics tablet, are automatically validated, edited and coded ready for▶



```
SNAP - SURVEY ANALYSIS PACKAGE
Current Survey : PRINTHOW
Current Action : GRAPHICAL ANALYSIS for variable 1 ( REGION )
                    0      20      40      60      80     100     120
      Value  Count
     LONDON    96
 SOUTH EAST   104
      SOUTH    63
 SOUTH WEST    76
   MIDLANDS    56
 NORTH EAST    26
 NORTH WEST    50
      WALES     4
   SCOTLAND    25

WHICH OPTION ?
B = Build a histogram      C = Change scale     (U)= Scroll Up
P = Print this histogram   S = Change Symbol    (D)= Scroll Down
                                                M = Return to Menu
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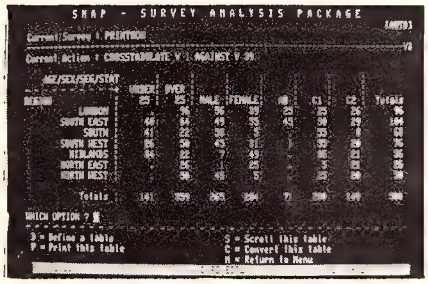
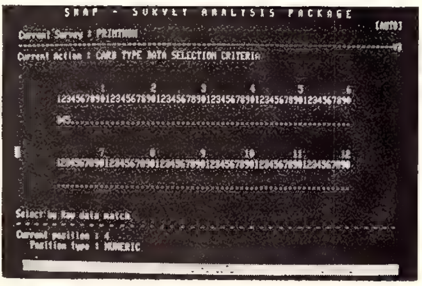


```
SNAP - SURVEY ANALYSIS PACKAGE
                                                              [AUTO]
Current Survey : PRINTHOW
Current Action : CROSSTABULATE V 1 AGAINST V 3
     AGE/SEX/SEG/STAT
                      UNDER  OVER
REGION                  25    25   MALE  FEMALE   AB   C1   C2   Totals
             LONDON
         SOUTH EAST
              SOUTH
         SOUTH WEST
           MIDLANDS
         NORTH EAST
         NORTH WEST

             Totals
WHICH OPTION ?
D = Define a table                  S = Scroll this table
P = Print this table                C = Convert this table
                                    M = Return to Menu
```



```
SNAP - SURVEY ANALYSIS PACKAGE
                                                              [AUTO]
Current Survey : PRINTHOW
Current Action : CARD TYPE DATA SELECTION CRITERIA

         1         2         3         4         5         6
123456789012345678901234567890123456789012345678901234567890

         7         8         9        10        11        12
123456789012345678901234567890123456789012345678901234567890

Select by Raw data match
Current position : 4
   Position type : NUMERIC
```

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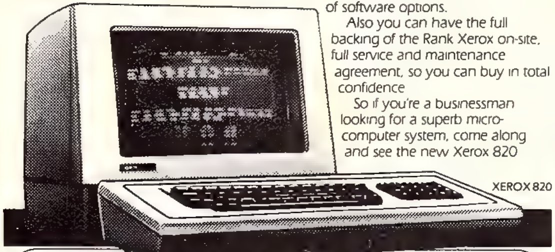

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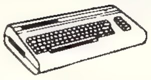

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It was virtually impossible, even without the manual, to make serious mistakes

▶carrying out subsequent analysis.

Second is the 'punched card' format, which is more suitable for the larger type of survey. In this mode survey data can be accumulated by using a data preparation bureau (Mercator offers this service to TeleVideo and Superbrain users); by collecting survey data from a mainframe computer using a standard communications program and operating the microcomputer as a terminal; and by straightforward use of the microcomputer keyboard.

Once all this 'raw' data has been keyed in, Snap embarks on a number of checking procedures to see whether it is numeric, alphabetic, alphanumeric or multi-punch data and whether it falls within user-specified ranges.

Moving on to the analysis stage, the production of hole-count tables and cross tabulations is simplicity itself, for example the production of a hole count analysis is achieved merely by typing 'H' on the tabulator analysis menu.

'Scrolling' features are incorporated so that tables far larger than the standard VDU screen can be examined.

And filtering is available to select out particular responses for a variable (eg males under 18 and over 65).

Turning to the statistical analysis function, the descriptive statistics available within Snap are only for minimum/maximum/range; mode; mean; standard deviation; and variance. For someone like me who used to waste hours struggling with convoluted mathematical formulae, log tables and reams of paper in an attempt to discover the standard deviation for a particular sample, and often was none the wiser at the end, it was a positive blessing to be able to carry out the whole procedure in a couple of seconds at the press of a key.

On the other hand I can appreciate that the professional statistician, as opposed to the lowly researcher, might require rather more sophisticated statistical tools and in this respect Snap is at a disadvantage. However, I understand Mercator is aware of this problem and is considering upgrading the statistical analysis side of the program.

My final comment on the software is the graphical analysis facility. Again this is not one of Snap's strong points as it is limited to producing fairly rudimentary histograms. But this is an unavoidable drawback not an inadequacy▶

The TeleVideo micro was easy to use

What it cost

Snap program, user manual plus one year warranty and update: £645

Complete system comprising of TeleVideo TS802H microcomputer with 7.5MB Winchester hard disk, dot matrix printer and Snap software. £6,150

Snap software is available as a part of a microcomputer system in a variety of configurations ranging from £4,600 to £10,000).

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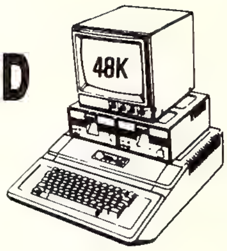

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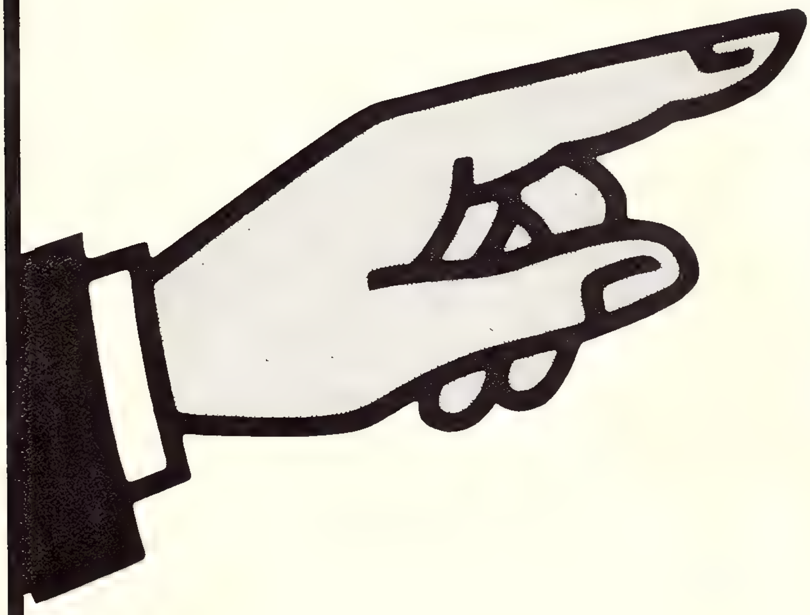

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Graphics is not one of Snap's strong points as it is limited to simple histograms

▶in the Snap software. The problem is that most microcomputers possess only low resolution graphics. According to Mercator, if high resolution graphics do become a more general feature on computer hardware, it will reconsider Snap.

Despite the many advantages of the hard disk mentioned earlier, Snap is still a program written for microcomputers, so there are some limitations on its capabilities.

For example, Mercator recommends that Snap should not be used in practice for surveys of more than 2,000 respondents. Similarly the number of questions on a questionnaire is limited to 192, while the maximum number of values per variable is 30. So far however none of the users of Snap, which include the BBC and the National Bus Company, have found these restraints a disadvantage.

This is perhaps understandable when you consider that many surveys take their data from surprisingly small sample populations. For example, London Weekend Television's 'Weekend World' programme bases its often very influential opinion polls on a sample of 1,000 interviewees, while polls taken in the lead-up to by-elections sometimes involve a mere 400 people.

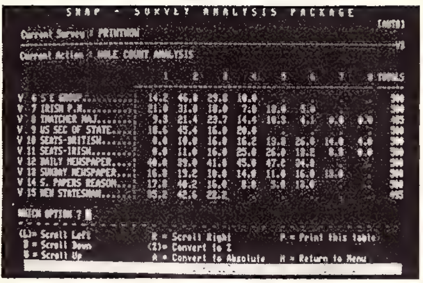
If there is any serious criticism of Snap at all, it is that the documentation accompanying it is inadequate for both the hardware and the software.

The TeleVideo user manual was a typical example of American technical writing at its worst. The massive volume was packed with irrelevant information, all in the most hideous jargon and guaranteed to worry and confuse the first-time user. Fortunately the computer was so simple to operate that most people could probably safely consign the manual to the back of the book-shelf.

I also have the same, rather more worrying, criticisms of the Snap manual.

My complaint is not so much that the documentation is inadequate, but that it is badly organised. There are far too many long paragraphs cramming together too many important stages in the operating process. There is no index. And above all, the reader is continually being referred backwards and forwards in the text.

Given the overall quality of the rest of the Snap package, Mercator could be spoiling the ship for a ha'p'worth of tar. ☐



```
S N A P   -   S U R V E Y   A N A L Y S I S   P A C K A G E
Current Survey : PRINTMAN
Current Action : WHOLE COUNT ANALYSIS

WHICH OPTION ? █

(L)= Scroll Left        R = Scroll Right              P = Print this table
 D = Scroll Down       (Z)= Convert to Z
 U = Scroll Up          A = Convert to Absolute       M = Return to Menu
```

'Scrolling' lets you examine large tables

Where it came from

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The TeleVideo microcomputer and DRE dot matrix printer were kindly loaned by:

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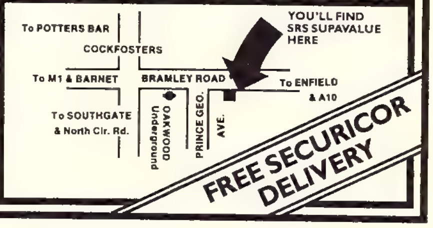

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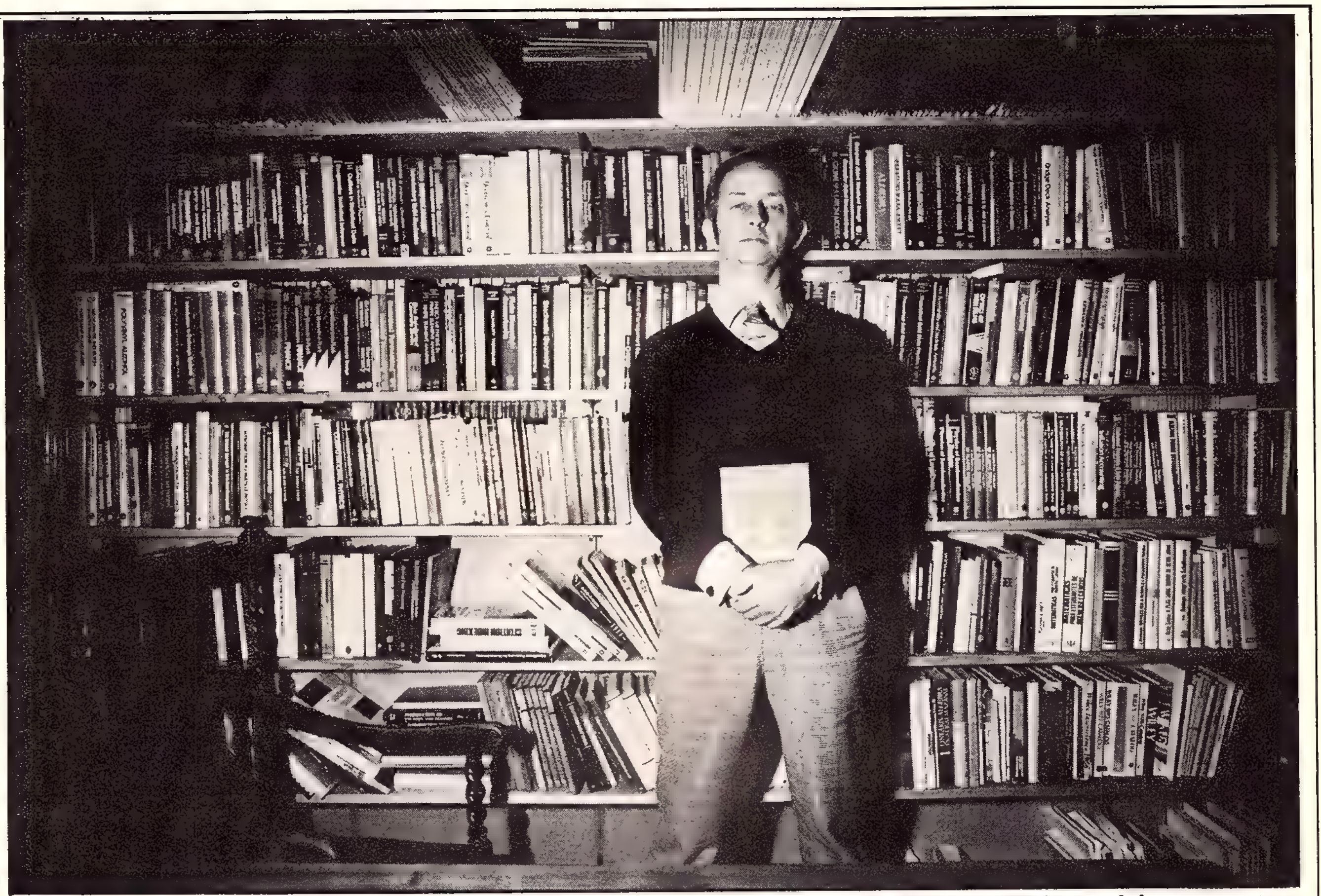
Bookshop turns over a new leaf

A bookseller with a large export side chose a data management system called Trendisk for its ordering. Peter Wild investigates



TONY SLEEP

The paperwork involved in keeping track of orders between many customers and publishers is an obvious task for a computer

Amid the clutter of the ordering department at Hubert Wilson, a bookseller in Margate Old Town, two items take pride of place.

One is a striking, bright silver cat called Bottletop who has made her home among the haphazard stacks of books and files characteristic of the back room of any bookseller.

The other is an Adler Alphatronic microcomputer. The system it runs is called Trendisk, one of many database management systems now available for micros running under the CP/M operating system.

Database management is one of the oldest computer applications, having grown up on large mainframe computers, but it has always been surrounded by controversy. Complaints of slowness and inaccuracy have persisted over the years.

Now, with programmers attempting to put more and more database management systems onto micros, the controversy is increasing. One new complaint is that desktop computers don't have the power to deal adequately with a full database management system.

A database system is something you need when you have to keep large quantities of information to which you need regular random access.

For example, you may keep a list of names and addresses of clients. There may be occasion to ask the computer for a sample of all the people on the list who own BL cars and live north of Watford. The system should then be able to sort through and give you that list.

At Hubert Wilson, the staff were spending a great deal of time tracking down orders to give clients an up-date on their progress. So a computer seemed a good idea.

But because Wilson is a specialist in the sense that the majority of its business is exporting books to institutional libraries all over the world, a standard bookseller's package would not be suitable. So managing director Ken Trueman looked around for something he could adapt to his own business.

The Trendisk system he eventually settled on was chosen more for economic reasons than anything else. He bought his Adler micro from BML of Redhill which said it could tailor a system to suit him. But this would have pushed the price up another £1,000.

As it happened, Trendisk was being offered free with the Adler, and it was suggested that Trueman might be able to get some use out of it.

Microtrend, the Yorkshire company which produces Trendisk, is careful not to call the system a database management system. 'It is a data management system,' says David Hebditch, Microtrend director.

'The emphasis with the system is on ease of use,' he continues. 'We wanted to make it as simple as possible for the first-time user.'

At first, Trueman was sceptical about Trendisk. 'I wasn't sure it would be able to do the job,' he says. ▶

▶ Also, he felt that one small micro might not be able to cope with Hubert Wilson's massive amount of accounts. Trueman's solution was to transfer just the orders of his largest customer onto the computer.

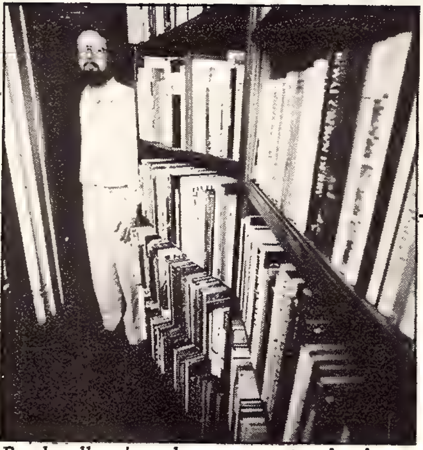
Since then, he has added a few more so that now the ordering department is run half on the old system and half on the computer.

But he will continue to add orders to the system until eventually he gets full use out of the machine. 'We are very conscious of not using the Adler to its fullest extent,' says Trueman.

All the same, he has seen a considerable increase in business since the computer has been installed.

Not only has the business expanded, but also the extent of work done with the computer. Originally, the idea was simply to keep a clear central record of all the orders, which could be accessed at any time without difficulty.

Customers frequently send in requests for information, and on average 100 such claims are received in a week. Previously Janine Whitfield, who runs the ordering office, would have had to search out each order, write to the publisher, and copy out the relevant information to send to the customer.


RICK MANN

Booksellers' packages are standard

In some cases this could take hours. An order could have been in any one of 21 different places in the office, and it would not always be clear what exactly was happening to it without contacting the publisher.

Now she can simply ask the computer to find the order, and the screen will display enough information to give you a clear idea what stage the order is at.

Then, rather than writing a letter to the customer, Whitfield simply has to get a print-out and send it off.

It soon became clear that while keying in the records for each order, some kind of order form could be printed to send to the publisher at the same time. Until then, the two forms had to be typed separately.

The new computer-printed orders don't look anything like the standard forms the publishers were used to. But Trueman says this doesn't seem to matter, as the books still come through as quickly.

'It does worry me a little that they don't look as professional,' he says. 'But it is much quicker, and seems a sensible way of doing things.'

All the information is kept on a printout, so if anything does go wrong with the computer there is a written record to back it up.

Also, copies of the data disks are taken at the end of every day so that if there was an accident only one day's work would be lost at most.

Trueman and his assistant managing director Janis Leach are clearly very happy with the computer as they have now transferred the accounts section on to a much larger minicomputer.

But the transformation has not always been problem-free. In the early days of using Trendisk, Trueman and Whitfield were making about one call a day to Microtrend. The main problem was that if several new orders had been ▶

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Wilson's has been able to absorb a lot more business since the computer came

Strong point

The support Hubert Wilson has received from both its hardware supplier and from Microtrend has been very good. Changes have had to be made to the program, and Microtrend has made them with the minimum of fuss.

However, whether this would apply to other customers is unclear. Hubert Wilson was among the earliest customers and therefore Microtrend was clearly interested in how the system was working out in the field.

As for hardware, BML of Redhill has never let Hubert Wilson down. Several things have gone wrong, but the service has been fast and good.

Strong point

Ease of use. Trueman admits that when he first acquired the system he and his staff were complete novices. But now they seem to have mastered the system very well, and find it a lot more convenient than the old manual method. They have been able to monitor the efficacy of the system as at the moment some orders are still operated under the old system.

Strong point

If you buy Trendisk separately it costs only £150, considerably less than any other comparable system. If you buy an Adler micro from BML, then you can have the program free. For Hubert Wilson the back-up was included in the price.

A tailor-made system, which may have had minor advantages over the Trendisk would have cost about £1,000.

Weak point

The program is spread over three disks which means that the operator has to change disks constantly if they require different functions.

Also, using standard floppy disks means limited storage capacity. In this case, the bookseller can keep 600 records on a disk. Of course, if you wished to keep less information within each record, you would fit more records on each disk.

Weak point

When Trueman prints out his orders on the machine, he feels they look unprofessional.

If Trueman wanted to make his orders look really good, he could get the Microtrend word processing package which links to Trendisk. He could also get a much more sophisticated printer which may cost over £1,000. The word processing package costs about £350.

However, it is important to remember always that Trendisk is an information keeping system. Anything else you achieve with it can be treated as a bonus.

The costs

Hubert Wilson's Adler Alphatronic micro plus printer and twin disk drive cost £2,545 plus VAT from BML, King's Mill, King's Mill Lane, South Nutfield, near Redhill, Surrey. (073 782) 2778. The maintenance contract is £345 a year. Adler is at 27 Goswell Road, London EC1. 01-250 1717.

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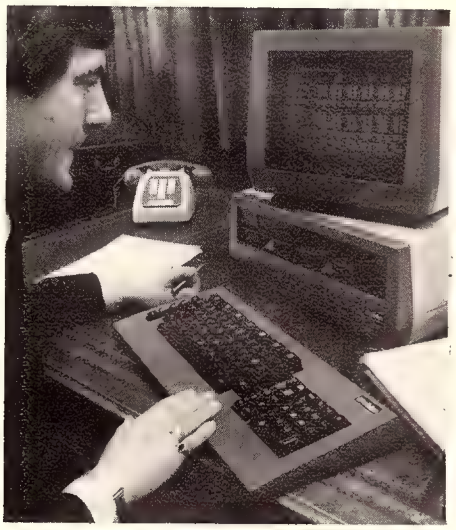

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The main problem was that they could not get a print-out of just the new orders

▶ put into the system, it was impossible to get a print-out of just those without all the other records on that disk.

You could, of course, print each one individually, but that would mean sitting in front of the computer for several minutes punching in boring commands.

So Trueman contacted Microtrend, which adapted the program enabling the user to print out all the new orders entered on that day. It did not charge for this alteration, which is now incorporated into the standard package.

In a way, Hubert Wilson has been lucky because it was one of the first users of the system, and has been treated to some extent as a guinea pig.

Another problem that Trueman faces is really something which is common to all data management systems run on small computers. Each floppy disk will hold 600 records allowing 22 items a record. With the amount of orders that Hubert Wilson has to deal with from so many different sources, this means that data has to be kept on a number of disks.

For example, in the case of the largest customer, 10 separate disks are needed to keep all the orders. This means that the disks themselves have to be filed very carefully, and to get a complete print-out of the orders made by the customer, someone would have to stay by the computer to change the disks.

Also, the program itself is so complex and has so many different functions that it has to be spread over three disks.

'This can be a bit of a nuisance at times,' says Whitfield. 'You set up an order using one disk of the program, but if you then wish to do a sort of the file, you have to change the program disk.'

Another slight disadvantage as far as this bookseller is concerned is the speed at which the computer can sort through the files. Booksellers tend to file under order numbers, which in some cases can extend to 11 digits. Trendisk works faster if you use the record numbers built into the system – but you have to know the record number of each order if you want it to work at full speed. When a customer rings up with a query, he will only have the book order number.

Even so, Trueman feels the system is very fast, and while he recognises this disadvantage, feels it may be peculiar to booksellers. Other types of firm may be able to work perfectly well using the original record number system.

Trueman reckons that had Wilson's had the cash available to have a tailored system some of these problems might have been ironed out. But he is not too worried. He has speeded up the business quite considerably, and in no way regrets the new addition to the office.

The support he has received from both Microtrend and his supplier, BML, has been invaluable. 'We pay about £300 a year for the maintenance on the hardware, and it has been well worth it,' says Trueman. 'BML will come out from Redhill at the drop of a hat, and for us this is vital.'

This level of support was one factor in Trueman's final choice of an Adler machine from BML. 'We went to Commodore, makers of the Pet, first, but they hinted it could be days before they responded to a call for help,' he recalls. 'For any business that is no use at all. Your business could run into all kinds of trouble if you have come to rely on the computer for vital jobs.'

As time goes on, Trueman sees the computer playing a greater role in the business, and it may not be long before he buys a second micro. ☐

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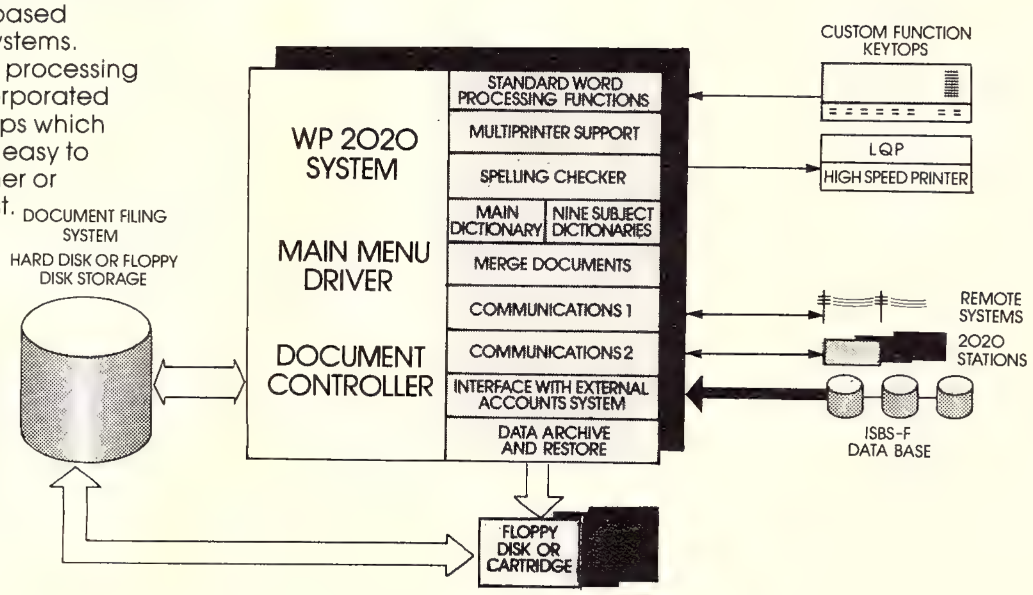
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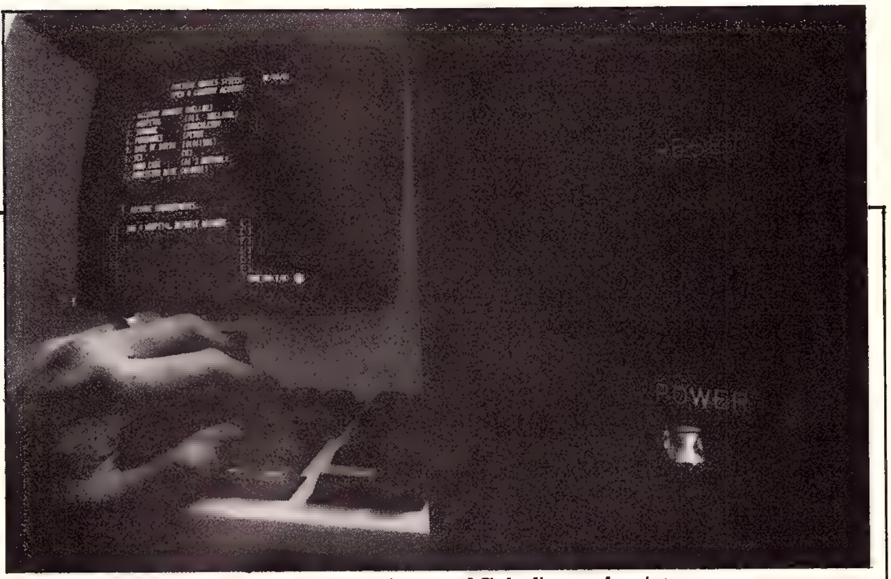


SANDY PORTER

The freedom to give files long names is one of Cobol's good points

Cobol: formal but still friendly

Many people learn to program in Basic, but the more complex language Cobol still reigns supreme in many business circles. In the third part of our language series, Peter Jackson looks at the very formal structures which make Cobol special

If one language has dominated the computer industry, it is Cobol – an acronym that deviously stands for COmmon Business Oriented Language. More programmers are trained in this language than in any other, and the large number of these Cobol writers and users means that the language is never going to disappear.

It might have its faults, but like the QWERTY typewriter keyboard it is too late to change the situation now. Basic might rule the microcomputer roost, but in business Cobol reigns.

When big computers first emerged in the late 1950s, it was envisaged that only a handful of machines would be needed for all the computing in the US. And those machines were only going to go to big business and Government organisations, who could afford the vast amounts of cash needed to buy and run the primitive beasts.

And it was around this time, in 1959, that Cobol was developed as a very English-like language for the big computers; the intention was to make it easy for users to handle large amounts of data, shifting them around and manipulating them in various ways. A lot of the development work was done on an early computer used by the US Navy, and the 'mother' of the language is reckoned to be Grace Hopper, then a Navy commander. The US Government was quick to produce a policy requiring that every computer bought with Government cash had to offer Cobol, and since the Government was just about the biggest computer customer around the Cobol bandwagon started to roll.

By 1966 the American National Standards Institute (Ansi) had proposed a standard version of Cobol, based on the 1965 recommendations of a body called Codasyl – the Conference on Data Systems Languages – and after ratification in 1968 this standard became Ansi Cobol, or simply Cobol 68. But changes were always being considered, and the current Ansi Cobol standard is Cobol 74.

So what about Cobol on microcomputers? The demand started as soon as the little systems appeared on the market, since a lot were being sold into large companies with trained Cobol programmers on the staff. And programmers were among the first to buy a machine to use at home, and felt that learning Basic was a bit of a waste of time.

Various versions of Cobol including Micro Focus CIS Cobol, CAP MicroCobol, and Microsoft Cobol – 80, based more or less on the 1974 standard, are now available on micros – and the delights of the language are just waiting to be discovered.

Well, 'delights' might be putting it a bit strong. Cobol has been described as clumsy, time-wasting, and boring to write – but as we have already said, it is too late to change it now. Let's look at how the language goes together.

If you look at a Cobol program, the first thing you notice is a remarkable lack of numbers, mathematical functions and symbols, and letters that stand for things. Cobol really is English-like, with real sentences that give the computer instructions. For instance, 'ADD TAX TO INSURANCE GIVING DEDUCTIONS.' is a valid instruction, although the 'TO' is not strictly necessary in most Cobol versions; 'ADD TAX, INSURANCE' would do just as well. But after this first glance, the next thing you notice is that the structure of a Cobol program is very formal indeed.

Any program in Cobol has to be written in what are called 'divisions', and these divisions have to be written in a particular order; they are the identification division, the environment division, the data division, and the procedure division.

The first of these is used to distinguish the program from any others, and includes things like the name of the program and the programmer, why, where and when it was written, and so on. Most of this is ignored by the computer, but useful for the user.

The environment division gives details of the system the program is to run on, that is the particular hardware configuration.

The data division is used to lay out all the files and data that the program is going to use, giving considerable detail on the type and structure of the files as well as on what is in them or going to be in them. This division is used to allow the computer to allocate space in memory for the data needed.

Finally, the procedure division is where the actual program that operates on the data is written.

The environment division helps in transferring Cobol programs from one computer to another, since if the computer hardware is different all the user has to do is re-write the environment division to take account of the differences; the rest of the program can stay the same. Obviously, the details of this division depend on the computer being used, but in general terms there are two sections, the configuration section and the input/output section.

The first describes the computer or computers used, while the second tells the machine which files are to input and output from which peripheral devices.

The data division is where things start getting complicated. This section must tell the computer how much memory space it needs to reserve for the data the program is going to use, and which sections of memory it is to go in. This is because Cobol needs separate areas of memory to get data into the compu- ▶

▶ ter from a file and put it out again, as well as an area for data not connected to any file. The data division takes care of this.

Simple Cobol programs only need two sections in the data division, the file section and the working storage section. Here is what the file section of the division might look like:

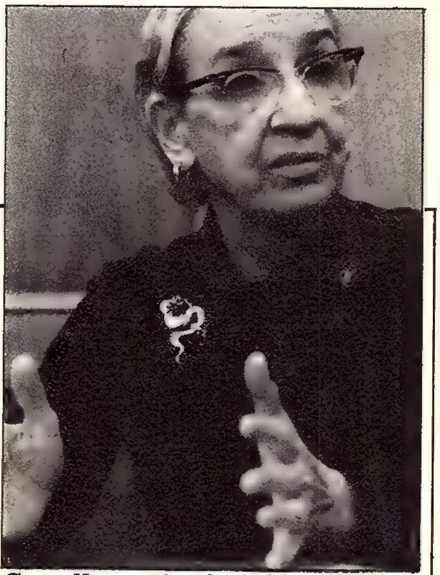
```
DATA DIVISION.
FILE SECTION.
FD CUSTOMER-NAME, DATA RE-
CORD IS NAME.
01 NAME.
   02 SURNAME PICTURE A(20).
   02 FIRST-NAME PICTURE A(10).
```

Here, the meaning of FILE SECTION is obvious; in the next line FD tells the computer that the name of the file follows. In the example the filename is CUSTOMER-NAME. Then comes the name of the individual records within the file, and since the file is of customer names the obvious DATA RECORD name to choose is NAME.

Once the names of the file and the records in the file have been defined, the next step is to specify the contents of each record and how much space they will take up in memory. The 01 is a 'level number' that tells the machine that a record name, part of a file, follows; you can then specify the parts of the record using the 02 level number. In this example, each record called NAME is made up of two sub-records called SURNAME and FIRST-NAME, reasonably enough.

The rest of these definitions involves a new Cobol keyword, PICTURE. This tells the computer how much space to leave for each element of data, and only needs to be specified for the sub-records; if you limit the size of the sub-records, the sizes of the records themselves and the whole file follow naturally. The numbers and letters following the PICTURE statement fix the amount of space taken up. In the example, the A means that the sub-record is made up of alphabetic characters, and the number in brackets specifies the maximum length of the sub-record. If the sub-records were numerical, the number 9 would be used; for example, CUSTOMER-NUMBER PICTURE 99999 for a five-digit number.

This same procedure has to be followed for every file, record and sub-record the program is going to use, with all the sizes included.


Grace Hopper, 'mother' of Cobol

The working storage section of the data division is used to reserve space in memory for data that is not part of a file, like variables that the program will use. For instance:

```
WORKING-STORAGE SECTION.
77 TOTAL PICTURE 999 VALUE ZERO.
```

In this case the section name is given as before, and the 77 level number tells the machine that a non-file data element follows. PICTURE is used as before, and VALUE is used to set the initial value of the variable. This initial value does not have to be ZERO, and does not even

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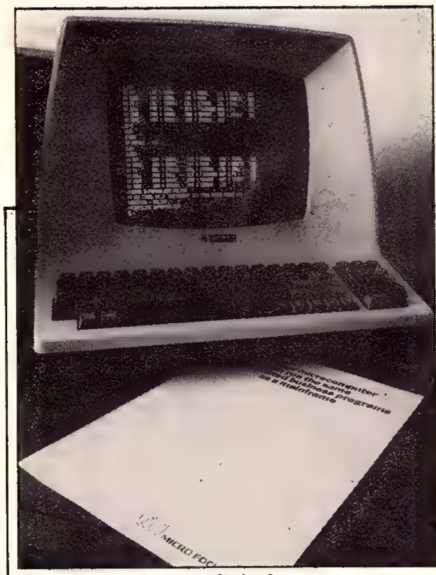

Too late to change Cobol now

have to be specified unless you think it is necessary, although the name of another data element like RUNNING-TOTAL could be used instead of ZERO as an initial value.

From the examples given, you can see that Cobol lines really are like sentences, with punctuation in reasonable places and ending with a full-stop. You will also notice that the language accepts long names like CUSTOMER-NAME for anything you like; the only restrictions are that the names must be made up of alphabetic and numeric characters and dashes only.

On the other hand, names of things that are not used in arithmetic but stay constant throughout the program – like constant numerical values or page headings – can use any characters up to a maximum of 120 or more, but must be enclosed in quotes.

This freedom of naming things is one of Cobol's good points, compared with most Basics where only the first two characters of a name mean anything and ACCOUNT is the same as ACTION as far as the computer is concerned.

Enough about the data division, except to emphasise that absolutely every piece of data you are going to use, including all the variables, has to have its name and size defined here.

The actual program that works on this data is contained in the procedure division, and once again the program lines look as much like English sentences as possible. Looking at arithmetic first, the words ADD, SUBTRACT, MULTIPLY, and DIVIDE are used instead of mathematical symbols, combined with extra words like TO, FROM, BY, and INTO to form the sentences. Here are some examples:

```
ADD A TO B.
SUBTRACT A FROM 32.6 GIVING C
ROUNDED.
DIVIDE CUSTOMER-NUMBER INTO
TOTAL.
MULTIPLY SALES BY SALES-PRICE
GIVING INCOME, ON SIZE ERROR
STOP.
```

These lines do just what they say. The ROUNDED bit means that when the answer of a calculation is obtained, anything after the decimal point should be removed. The ON SIZE ERROR statement means that if the answer is too big for the space assigned to INCOME in the data division, the program should do something; in this case it will just stop.

Another way of doing sums is given by the COMPUTE verb, but this is not available on many small Cobol systems. This has the form COMPUTE TOTAL ROUNDED = TOP-NUMBER* BOTTOM-NUMBER/1000. The system works out the expression to the right of the equals sign, using the mathematical symbols familiar from Basic, and puts the variable on the left equal to the answer.

Getting information in and out of the computer is complicated by the fact quoted earlier that different areas of ▶

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CisCobol is one common version

▶ memory are specified for input and output. So there has to be some way of moving data around inside the computer memory, and this is provided by the MOVE command.

But of course, input and output are not as easy as that. Before you can get a record into or out of a file, the file has to be opened with the OPEN command; for example:
OPEN INPUT CUSTOMER-NAME, CUSTOMER-NUMBER, OUTPUT NEW-CUSTOMER.

The filenames here are ones defined in the file section of the data division. Naturally, once you have finished processing the data the files need to be closed, using the CLOSE command and the same format as for OPEN.

Reading records from an open file is done with the READ command, which takes the next record from the specified file and puts it in the input record area of memory. Writing records back to the file is done using the WRITE command, which puts a named record from the output record area of memory into the file that it belongs to. Remember that every record name is assigned to a particular file in the data division, so there is no need to give the file name to go with the record name in a WRITE statement.

Shifting control around in a program, as in Basic's GOTO and GOSUB instructions, is done in Cobol using GO TO and PERFORM. GO TO is just like the Basic version, while PERFORM is just like GOSUB in that it causes the computer to go to a particular point in memory and follow instructions there until it comes to the final full-stop of the particular section; it then goes back to where it was originally. But instead of line numbers, Cobol uses section names to tell the computer where to go when it sees PERFORM. For example, a Cobol line might be PERFORM LINE-COUNT, where LINE-COUNT specifies a set of instructions somewhere in memory.

Conditional commands in Cobol, that is things telling the computer to do something under particular conditions, are done using a sentence starting with IF: for example, IF TOTAL = 100 PERFORM LINE-COUNT.

This can only give a very brief idea of what Cobol is about, since it is a complex language both to learn and to use. It has well over 100 command words – about three times the number of most Basics – and requires the user to learn discipline in structuring the program and defining every single bit of data that might be used. A long way from Basic's haphazard approach to data, and a long step above Pascal's insistence that you define a few important things at the start.

But the QWERTY keyboard has refused to die, and so will Cobol. It is a safe bet that when today's generation of Cobol programmers is gone, a second generation will be on the way – and it will be even bigger than the first. ☐

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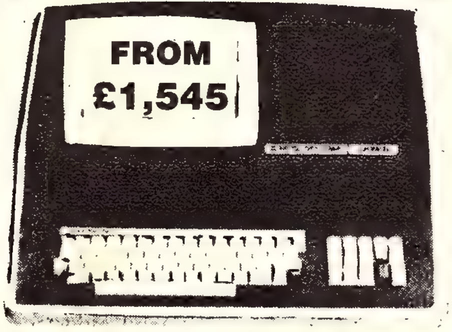

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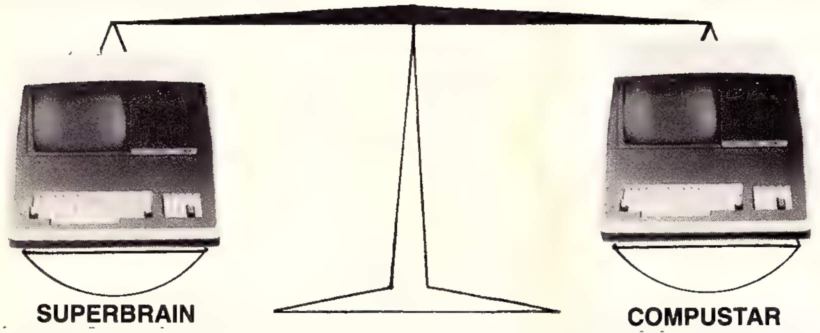

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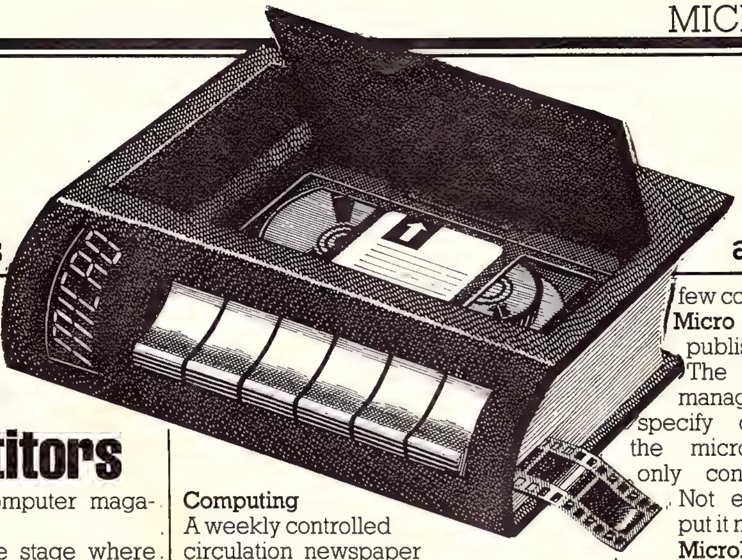
Ring Round 2011

Chris Barnard has a look at all the mags



Venturing to criticise our competitors

There are too many computer magazines on the market.

When it comes to the stage where actually buying all the different publications connected with microcomputers means spending almost as much as a small micro costs, then something must be wrong.

There are more microcomputer magazines coming on the market every week and even more scheduled for the future, so this month I present a totally opinionated and prejudiced guide for the confused first-time buyer of microcomputer literature.

Computer publications *are* important. An industry which is volatile, fast-moving, complex, confusing, and full of unscrupulous salesmen, needs ever-vigilant publications giving intelligent advice and sound information to their readers.

And some of those which will be useful to you may not be the most colourful or the most easy to find on the newsstands.

There is a mass of controlled circulation magazines available and I have included some of the prominent ones as well as some which are more relevant (or claim to be, at least) to the micro scene.

So look around – a crowded market just means that it's easier to miss the real gems.

Computer and Video Games Monthly newsstand magazine published by EMAP. In this case the name says it all. Full of new computer games (and some not so new) and reasonably lively graphics. It has a readable treatment appropriate to the energetic and enthusiast arena of computer play. Kids' stuff.

Computer Weekly A weekly controlled circulation newspaper published by IPC. Controlled circulation papers are posted out to people deemed to be in areas of responsibility in the appropriate industry, in this case, the computer industry. Perhaps the oldest computer publication, *Computer Weekly* grew up with the industry, but now, sadly, it seems to have reached a state of some senility. It has quite a lot of micro business stories – it should be remembered that computer industry people are very big customers for micro salesmen — but the editorial lacks the attacking bite one expects of a first-rate business publication. Abysmally designed too.

Computing A weekly controlled circulation newspaper published by VNU Business Publications. For a while *Computing* shared domination of the computer industry publications with *Computer Weekly*, but in the last year it has moved ahead in the field with an inexorable, juggernaut momentum. I write the odd piece for the paper but you would be forgiven for not noticing – it is simply so big that readers and writers run the weekly risk of getting lost. Still, it's not so institutional that it can't spark off the odd controversy and if you can find it there is some golden up-to-date stuff about the commercial and economic development of the computer industry. It's a business paper and not renowned for its treatment of micros from a consumer angle.

Computing Today A monthly newsstand magazine published by Argus Specialist Publications. Boring little number with a rare line in predictable articles aimed at no-one in particular. Its main claim to fame is a long period in its history when it was guided solely by an 'acting' editor. I still wonder what the magazine is playing at.

Data Business Monthly controlled circulation publication from the VNU stable. Spawned from the side of the professional newspaper *Accountancy Age*, *Data Business* deals with the computing needs of practising accountants. It has the odd interesting piece, but mostly it's as grey and uninspired as the profession for which it caters.

Educational Computing Monthly subscription magazine published by Educational Computing. Distributed to local education authorities, schools, colleges, etc, and complete with a recently restyled image, it is aimed firmly at making the most of the growing importance of computers (especially micros) in schools.

Electronics and Computing Monthly Newsstand magazine (though not that easy to find) published by Stagpark. Unremarkable, rather insipid publication.

Micro Computer Printout Monthly newsstand magazine published by Printout Publications. A lively, easy-to-read mag for which I have written the odd article. Its coverage is a bit patchy at times, yet it does succeed in letting you feel that computers aren't big horrible lumps of complexity impenetrable to all but a few computer scientists.

Micro Technology Monthly title published by Hanover Press. The magazine is posted to managers 'with authority to specify or purchase products in the micro field'. The publication only contains advertising material. Not exactly *War and Peace*, to put it mildly.

MicroDecision Monthly newsstand publication published by VNU Business Publications. Far be it from me to pass comment on the merits of my own editorial vehicle. Suffice to say it's a publication specialising (note the word specialising – this is unusual in the micro publishing world where most titles try to spread their readership net as wide as possible) in micros for business applications.

Mind Your Own Business Controlled circulation monthly published by Cairnmark. Often overlooked in surveys of computer publications, this freebooting and wide ranging business equipment magazine devotes a large proportion of its editorial to how computers, especially microcomputers, can be used in business. Has had a few useful introductory articles but is, by and large, product-oriented, gives too much space to the claims of manufacturers and is of limited appeal.

Office Systems Monthly, controlled circulation magazine published by IPC. Started strong, with lively design and well-thought-out and original editorial, but has now slumped somewhat and is heading dangerously towards the status of just-another-office-equipment-paper. And most office equipment papers are drier than the Gobi desert.

Office of the Future Monthly controlled circulation magazine published by the Electronic Technology Publishing Society. Deeply cynical and controversial coverage of office automation which takes the user's side against all comers. I write regularly for the paper, but don't let that put you off. Coverage hardly attempts to be comprehensive or balanced, and editorial interest is sporadic. Has an increasing emphasis on microcomputers and how they are being sold.

Personal Computer World Monthly newsstand magazine published by Sportscene publishers. The best and most intelligent of the old-style microcomputer magazines. It grew up with the enthusiasts for micros when the whole business appeared to be a passing craze akin to roller skating. It is intelligent and witty and an easy read. On the other hand its reviews tend to get bogged down in the relation of machine specifications rather than relating them to practical applications. But maybe this ▶

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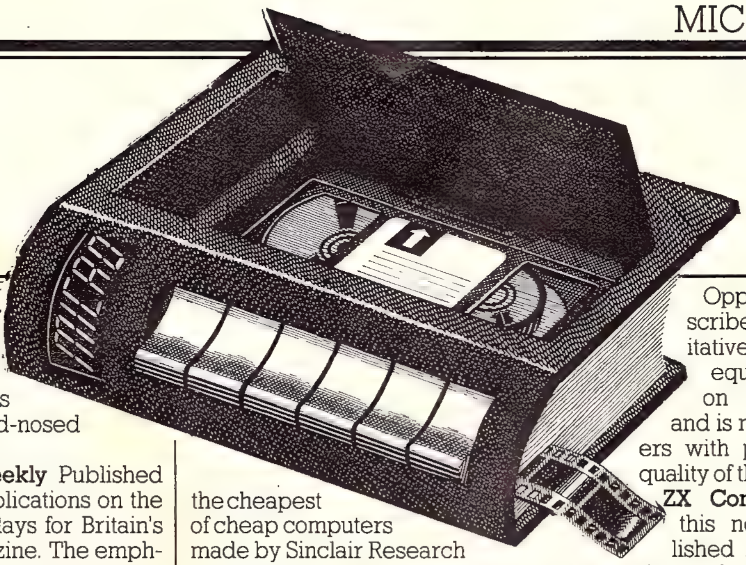

▶ is symptomatic of a change in the entire direction of the micro business as it passes from its amateur phases into something more hard-nosed and mass-produced.

Popular Computing Weekly Published weekly by Sunshine Publications on the newsstands. Still early days for Britain's first weekly micro magazine. The emphasis is on games and the Sinclair ZX81 and the Commodore Vic. Like Olive Oyl, it's a bit thin, but has a homely appeal.

Practical Computing A monthly newsstand magazine published by IPC. I dislike *Practical Computing* because, despite its status as a weighty tome sharing domination of the micro magazine market with *Personal Computer World*, it doesn't appear to *care* for its readers. A lot of the material is dull and lacks context and though it does do the odd compilation of lists of worthy facts and figures, it lacks wit, style and wisdom.

Sinclair User Monthly newsstand magazine published by ECC Publications. This publication for the large and growing number of people who are buying the cheapest of cheap computers made by Sinclair Research has not been out long enough for a firm judgement. Predictably, however, demand for it, just like demand for the machine itself, is booming.

Vic Computing Published six times a year by Paradox. This looks a more interesting publication than most user magazines, with thoughtful editorial and a light touch.

What's New in Computing Controlled circulation monthly published by Morgan Grampian. Tedious publication covering the whole of the range of computers, big, small and negligible. Nicely designed to fit at the bottom of waste-bins of data processing staff everywhere.

What to Buy for Business A no-advertising monthly report published by Oppenheim Derrick on a subscriber-only basis. Meaty, authoritative guide for buyers of office equipment of all kinds. It's good on microcomputer equipment and is not afraid to upset manufacturers with pointed comments upon the quality of their wares.

ZX Computing Launched in April this newsstand magazine is published by Argus Specialist Publications. The second Sinclair user magazine, it is published quarterly with an initial circulation of 50,000, at a cover price of £1.75. Says editor Tim Hartnell: 'The aim of *ZX Computing* is to try and reflect the wide diversity of ZX81 owners' interests. While we have not neglected games players, we have made sure that people who want to discover sophisticated programming techniques, or those who want to use the computer in business, find the material of interest to them.' Embarrassingly the first magazine's publication lead time did not allow it to carry news of Sinclair's latest micro, the Spectrum, and overall it seems to rely rather heavily on the journalistic 'talent' of the father publication *Computing Today*. ☐

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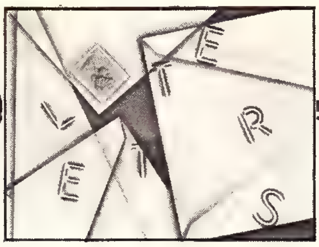

Costing package

From Andrew Goldsmith

It was with great distress that I read your article in *MicroDecision* (May edition) referring to a job costing package. This form of cheap sensationalism does no justice either to your magazine or to a small company of which you have no direct knowledge.

To take statements out of context glibly is simple, but I would have thought, rather unsatisfying for any journalist of reasonable ability. Your article makes Dantedale, and myself as a director, into villains only too ready to trick all and sundry into giving up their money. Those whom I have worked with and supplied know that the contrary is true.

I state again, as I stated then, it is not my intention now, nor was it, nor will it ever be, to mislead any prospective purchaser of this software package and the hardware upon which it runs, and I concur wholeheartedly with Barry Pateman when he states that the job-costing package is a stand-alone job-costing system suitable for *any* kind of business.

Andrew Goldsmith, director, Dantedale, Stratford, London E15.

The editor replies: The article was not cheap sensationalism. It was a very important item pointing out an exceptionally misleading presentation of a system. The system was publicised as a job costing system specifically for builders in one press release, and as a job costing system specifically for caterers in another. It is exactly this kind of confusion, whether deliberate or accidental, which embitters computer customers.

Last One and Tandy –

From Martin Soble

About your story headlined 'Tandy toys with The Last One' (Page 20, April '82), in which you ask 'Do they know something we don't?' Yes, we do!

The Last One was launched by Tandy Corporation last year and was freely available from November.

True enough, The Last One appears under the Games and Home/Personal category – but who are we to dictate which applications its many users can devise?

I appreciate the time taken to compile a publication like *MicroDecision* but surely you didn't put the April edition to the press last October!

Martin Soble, computer merchandising, Tandy Corporation, Walsall.

– it is available

From R G Bambury

Your article about The Last One (Page 20, April issue) and the fact that no product has been delivered, has been brought to our attention by one of our customers.

Please understand, the Tandy version has been on sale since last October. The CP/M version has been on sale since November of 1981 and the Sharp version since early December 1981. The Apple version has now been delivered to customers who have paid and is on general sale.

I do feel that you ought to print an article putting the matter straight. The facts can be corroborated by Tandy.

R G Bambury, chairman, D. J. 'AI' Systems, Station Road, Ilminster, Somerset.

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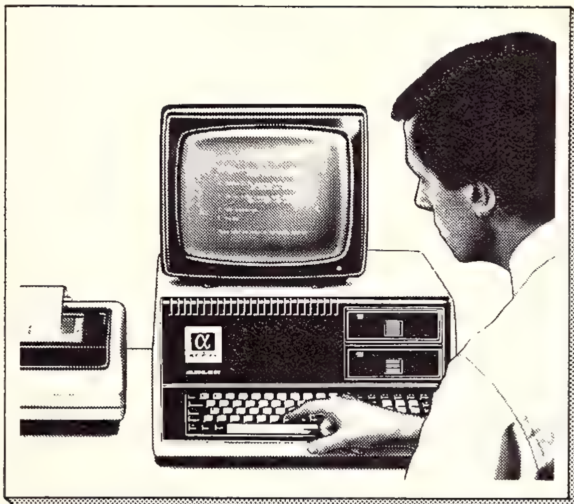

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Micro Consultant

As promised, all the questions this month have come from our telephone help service – which seems to get busier all the time, as the problems get more complex. Some of them are still simple though...

Connecting printers

At the moment I have a Research Machines 380Z system, but am interested in the new Sirius 1. Can a Ricoh Flowriter printer be plugged into these machines without too many problems?

In theory yes, since both the 380Z and the Sirius have the right interfaces to suit the Flowriter – the printer has an RS232 standard socket and optional other ones.

But interfacing printers to computers has caused more enquiries to us than any other problem, and we can not emphasise too strongly the importance of buying a printer from a supplier who will make sure that it works with your computer. Buying mail order printers is cheaper (usually) but works out more expensive when, as often happens, you plug the printer into the computer and it just won't work.

The Flowriter seems like a good printer; but just be careful where you get it from.

Choice of disks

I have decided that my Tandy Model I system needs floppy disks, but Tandy's own do not look very good value. Units from TEAC and DRE have been advertised – will they work with the Tandy?

The first thing, as you probably know, is that the Model I needs an expansion interface box (about £250) before you think about disks.

Assuming this is OK, you can look at disk drives – and although we know nothing dreadful about Tandy's own, you are entitled to your opinion. Various companies make drives that plug straight into the Tandy expansion interface, and TEAC is one of them, so there would be no problems there. DRE, a UK company, is a different story; when we called the company we were told that 'in theory dealers should be able to help, in practice we find they can't.' The general tone was that DRE did not know much about the Tandy interface, so DRE disks are not a good bet unless you have a technically-minded supplier.

Check the ads, since you might find some Tandy-compatible drives cheaper than TEAC's, but they seem pretty cheap to us.

Comparing capacities

I intend to buy a microcomputer system for my building business, and so far I have seen demos of the Commodore Pet and Apple II. The Commodore man told me that I could do the job with double-density 5.25 inch floppy disks, and the Apple one said I needed 8 inch floppies to do the job. I was told that the 5.25 inch disks are more fragile in everyday use – is this really true?

There are two points here, floppy disk capacity and floppy disk reliability, and we'll take them in order.

The Commodore dealer will have shown you that company's own floppy magnetic disk units, which can store over a million characters of information on the bigger models, and this would probably be enough for your application. But the Apple man had a problem; Apple's floppy disk units have very low storage capacities by today's standards, only about 150,000 characters on each disk. This is why he suggested 8-inch disks, since the bigger diameter means that you can store much more information on each disk you use.

Now Apple does not make 8-inch disk units, so these would have to come from somebody else. This is no bad thing, since people supplying add-ons for the Apple II always charge less than Apple does for the same thing if it sells it. But 8-inch disk units cost a surprising amount more than 5.25-inch units with comparable capacities.

I wouldn't like to suggest that the Apple dealer tried to convince you to buy Apple by running down 5.25-inch double-density disks. However, although double-density techniques mean that the 5.25-inch drive has to have much tighter engineering tolerances, these drives have been around for some time now and are widely used. There are no drastic stories about appalling reliability, and we would suggest that you should not be put off by scare stories.

Sinclair's printer

I want to buy a Sinclair ZX Spectrum, but I don't fancy Sinclair's £60 printer. Can the Spectrum be used with any other printers?

The brief answer is no, not yet. Sinclair's expansion connector, the set of contacts at the back that you plug the printer and the new Microdrive floppy disks into, is the company's own design and does not conform to any accepted standard. So at the moment Sinclair's printer is the only one you can use with the Spectrum.

But later in the year Sinclair plans to release an extra circuit board to give the Spectrum (and presumably the ZX81) an RS232 interface, which is a popular interface for printers. There is no need to go into much detail but this board, which should cost about £20, will allow the machines to be interfaced to a very wide range of computer peripherals – including lots of different printers and even the top visual display units with a full keyboard.

But until this emerges from Sinclair's Cambridge lab or Timex' Dundee factory, keep your eyes open. Various manufacturers are doing add-ons like real keyboards for the ZX81, and a board to convert the expansion connection into a standard interface would seem like a good idea for an entrepreneur.

With the addition of the promised Microdrive disks, the ZX Spectrum could do a really good job in a business. We shall watch its future progress with interest.

Financial modelling

I am very interested in buying a microcomputer for financial modelling, with the right hardware and software. Do you have any suggestions?

The most popular program package is VisiCalc, which works on the Apple II and systems with the CP/M control program. This has been so popular that the company marketing it changed its name from Personal Software to VisiCorp; and it is available from many dealers over here. There are also a range of other Visi products that let you draw graphs of your financial figures, construct indexes for them, and so on.

Also from VisiCorp and worth a look is Desktop/Plan II for the Apple II, with more sophisticated features.

Other possibilities include the SuperCalc, CalcStar, and Mars packages, all for the CP/M control program, and Execuplan II for the Vector Graphic micros.

The best value in hardware/software combination is the Osborne 1; you get the computer for £1,250 and the SuperCalc program thrown in for nothing.

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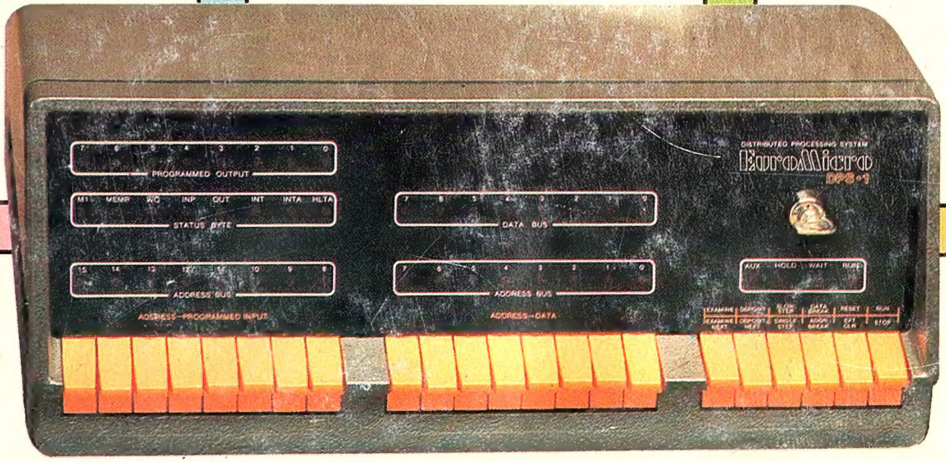
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